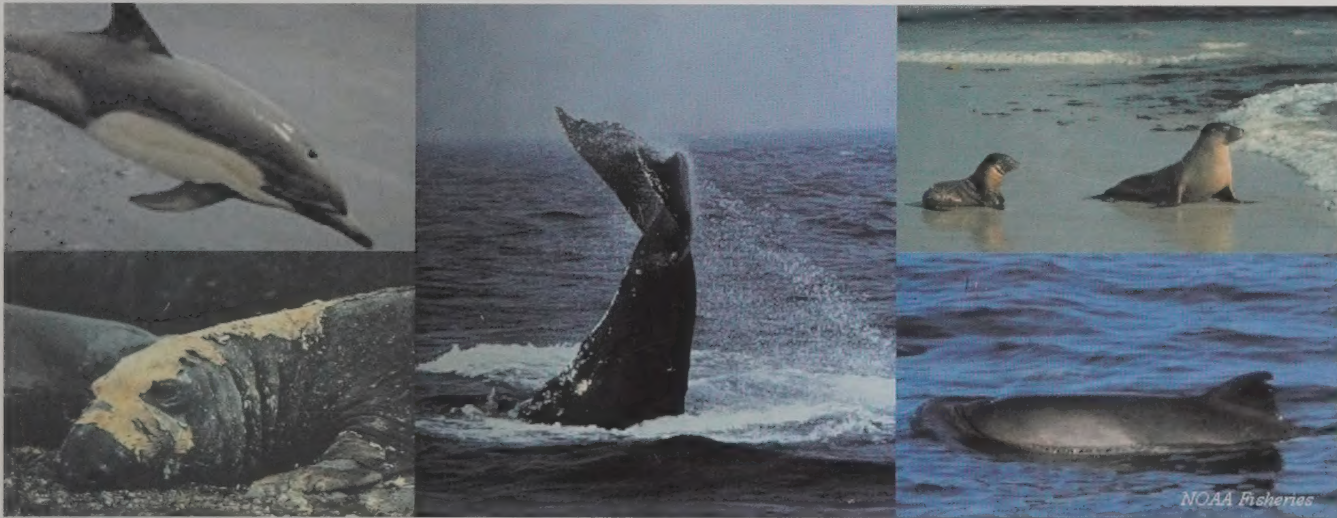


Annual Report

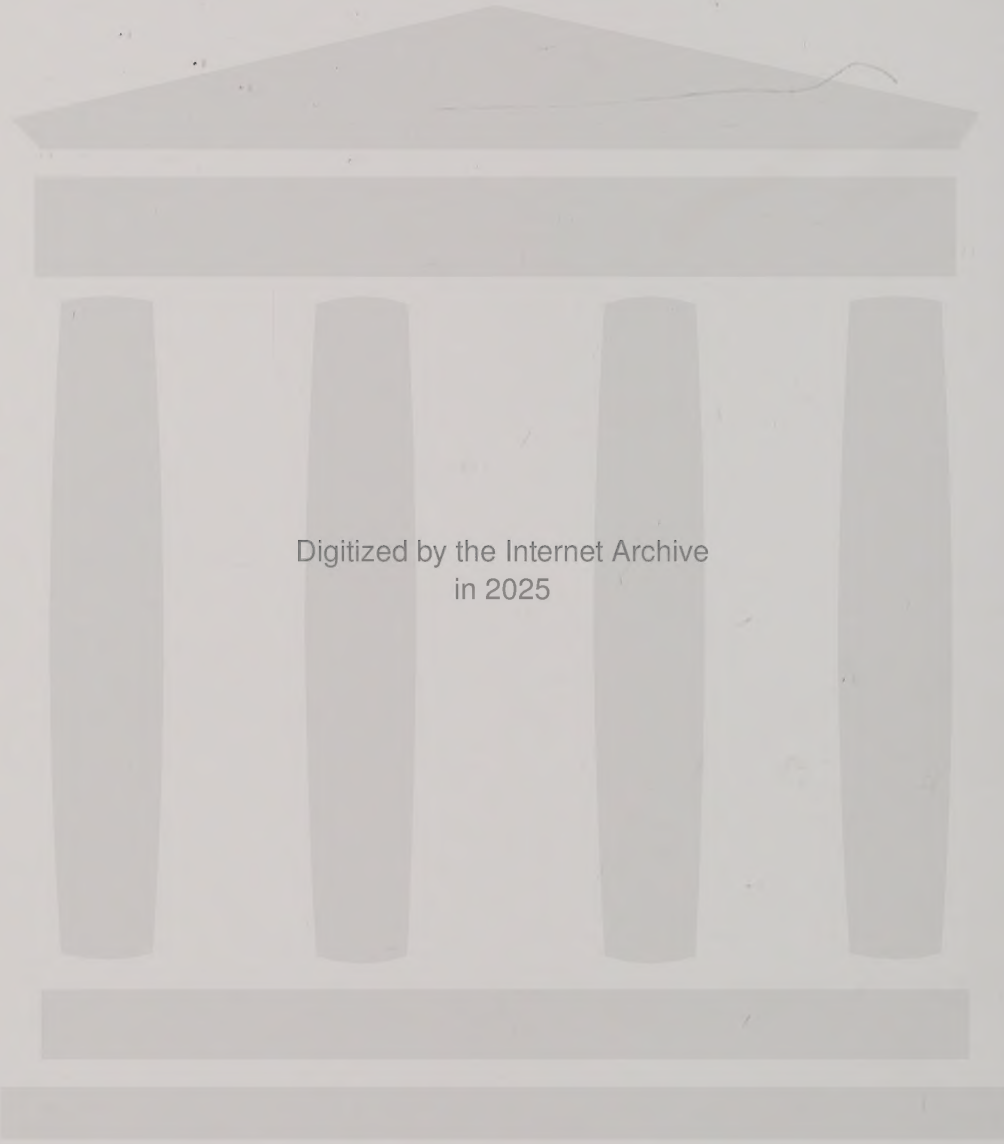
Administration of the Marine
Mammal Protection Act of 1972

1999 - 2000



Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service (NOAA Fisheries)
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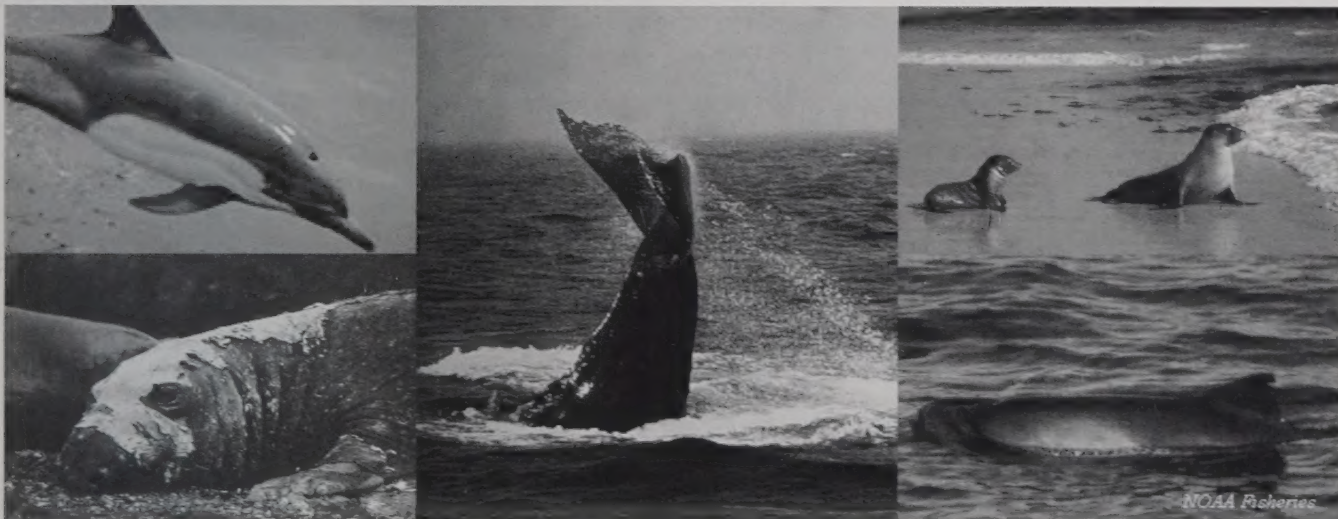


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Annual Report

Administration of the Marine
Mammal Protection Act of 1972

1999 - 2000



Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service (NOAA Fisheries)
Office of Protected Resources

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1999-2000 executive summary



humpback whale tail, NOAA Fisheries

"Marine mammals have proven themselves to be resources of great international significance, esthetic and recreational as well as economic, and it is the sense of this Congress that they should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management."

(Section 2(6) of the Marine Mammal Protection Act of 1972)

This MMPA Annual Report to Congress has been prepared by NOAA Fisheries pursuant to sections 103(f), 104(h)(3)(C), 110(d) and 115(b)(3) of the MMPA. Copies of all MMPA Annual Reports are available on-line and by hard copy from the Office of Protected Resources in Silver Spring, Maryland. (See Appendix G.)

Editor: Jill K. Lewandowski
Office of Protected Resources

The passage of the Marine Mammal Protection Act of 1972 (MMPA- 16 U.S.C. 1631) gave the U.S. Department of Commerce, through NOAA and the National Marine Fisheries Service (NOAA Fisheries), the responsibility for implementing the MMPA for all species of whales, dolphins, porpoises, seals and sea lions. In addition, NOAA Fisheries administers the provisions under the Endangered Species Act (ESA- 16 USC 1531-1544) for marine mammal species listed under the ESA and also implements the Fur Seal Act of 1966 (16 U.S.C. 1151-1187). Under these Acts, NOAA Fisheries works to conserve, protect and recover marine mammal species in U.S. waters and on the high seas by developing national policy, implementing recovery planning and conducting scientific research. In cooperation with the Marine Mammal Commission, federal and state agencies, conservation groups, scientific researchers, the fishing industry, the public display community and the general public, NOAA Fisheries seeks to provide sound management planning to protect the health and stability of captive and wild marine mammals.

Since 1972, significant progress has been made in the management, protection and conservation of marine mammals. For example, some populations of marine mammals have recovered well enough to be removed from the threat of extinction. In other cases, ground-breaking research has been conducted on critically endangered marine mammals resulting in the development of more viable recovery planning. A permitting program has been developed to provide authority for activities (*i.e.*, research) on marine mammals without causing unnecessary human encroachment. Today, many other countries not only look toward the U.S. for guidance on marine mammal conservation issues, but have also established their own laws and policies modeled after the MMPA.

The 1999-2000 MMPA Annual Report to Congress highlights important accomplishments made during this time period, including implementation of a mandatory ship reporting system to help in protecting Northern right whales from ship strikes, response to over 7,000 animals in need through the National Marine Mammal Stranding Network, designation of the "Dolphin Safe Logo," and partnerships with domestic and international communities to further protect our nation's marine mammals. However, more progress is needed. Critically endangered marine mammals, such as the Northern right whale and Hawaiian monk seal, still remain on the brink of extinction. Additional detailed assessments of wild populations are needed to provide better information on human induced injury or mortality, pollutants and other potentially harmful factors in the animals' environment. Additional efforts are also needed to further address the rapidly increasing problem of close and harmful interactions between the public and wild marine mammals.

In the coming years, NOAA Fisheries will continue to build upon these past accomplishments and look ahead in further addressing areas of need. It is by advancing sound management policies that include protective measures for marine mammals, while still balancing commercial, recreational, scientific research and other human interests, that NOAA Fisheries can be successful in preventing wild marine mammal populations from diminishing beyond the point at which they are no longer a viable contributor to the health and stability of the ecosystem.

William T. Hogarth, Ph.D.
Assistant Administrator for Fisheries

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stock assessments

1000-2000

Sections 117 and 118 of the Marine Mammal Protection Act (MMPA) establish a long-term regime for governing interactions between marine mammals and commercial fishing operations. These sections direct NOAA Fisheries to complete Stock Assessment Reports (SARs), convene Scientific Review Groups (SRGs), publish the List of Fisheries (LOF), convene take reduction teams in order to form take reduction plans, and meet both short- and long-term goals for reducing incidental takes of marine mammals. These are all components of a comprehensive program designed to reduce interactions between marine mammals and commercial fishing operations.

The formation of a take reduction team to reduce interactions between marine mammals and commercial fisheries is dependent on a fishery's classification in the LOF and whether its status is strategic according to the SAR. In addition, the SARs provide much of the data used during the development of the take reduction plans. The results of observer programs, which are used to collect data on the level of incidental mortality and serious injury in Category I and II fisheries, are presented in the SARs. As NOAA Fisheries begins to implement take reduction plans in order to meet the short- and long-term goals of the MMPA, recommendations and comments from the SRGs will continue to play a critical role as NOAA Fisheries monitors fisheries to ensure that incidental marine mammal mortalities and serious injuries decline over time to insignificant levels. For more information on programs for reducing interactions between marine mammals and commercial fisheries, see Chapters 6-7.

Section 117 of the MMPA requires NOAA Fisheries and the U.S. Fish and Wildlife Service (USFWS) to prepare and periodically update marine mammal stock assessments. The SARs indicate whether the status of a marine mammal stock is considered "strategic" and provide much of the data NOAA Fisheries uses to classify fisheries under section 118 in the LOF.

Section 117 (a)(1) states that NOAA Fisheries shall:

"... prepare a draft stock assessment for each marine mammal stock which occurs in waters under the jurisdiction of the United States. Each draft stock assessment, based on the best scientific information available, shall -



pilot whale pod; M. Payne, NOAA Fisheries

- 1) describe geographic range of affected stock, including any seasonal/temporal variations
- 2) provide for such stock the minimum population estimate, current and maximum net productivity rates, and current population trend, including a description of the information upon which these are based
- 3) estimate the annual human-caused mortality and serious injury of the stock by source and, for a strategic stock, other factors that may be causing a decline or impeding recovery of the stock, including effects on marine mammal habitat and prey
- 4) describe commercial fisheries that interact with the stock, including -
 - a) the approximate number of vessels actively participating in each such fishery
 - b) the estimated level of incidental mortality and serious injury of the stock by such fishery on an annual basis
 - c) seasonal or yearly differences in such incidental mortality and serious injury
 - d) the rate, based on the appropriate standard unit of fishing effort, of such incidental mortality and serious injury, and an analysis stating whether such level is insignificant and is approaching a zero mortality and serious injury rate
- 5) categorize the status of the stock as one that either -
 - a) has a level of human-caused mortality and serious injury that is not likely to cause the stock to be reduced below its optimum sustainable population or is a strategic stock, with a description of the reasons therefore and
 - b)

- 6) estimate the Potential Biological Removal (PBR) level for the stock, describing the information used to calculate it, including the recovery factor."

Stock assessment reports are available in electronic form from the Internet. Reports can be retrieved as compilations (large files by year and region) or individually by population from the following Internet address:
http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/sars.html

Scientific Review Groups

Section 117 of the MMPA requires the establishment of three regional SRGs representing Alaska, Pacific Coast (including Hawaii), and Atlantic Coast (including the Gulf of Mexico). In compliance with requirements, the SRGs were created under the direction of the Secretary of Commerce in consultation with the Secretary of the Interior, the Marine Mammal Commission, the Governors of affected adjacent coastal States, regional fishery and wildlife management authorities, Alaska Native organizations and Indian tribes, and environmental and fishery groups. The

SRGs review draft stock assessments and advise NOAA Fisheries concerning marine mammal population status, trends, stock identity, and dynamics; uncertainty and research needed on the marine mammal stocks and research needed to identify methods to reduce incidental mortality and injury; habitat degradation and appropriate measures to reduce impacts; and any other issue NOAA Fisheries or the groups consider appropriate in pursuing the goals of the MMPA. SRG members are required to have expertise in marine mammal biology and ecology, population dynamics and modeling, commercial fishing techniques and practices, or stocks under section 101(b) in order to provide balanced and representative viewpoints in their discussions.

All three SRGs met in a joint session in Seattle, Washington, in April 1999. The joint meeting was scheduled to (1) provide a forum for comments and exchange of information among SRGs, and (2) develop recommendations on issues of common concern to the three SRGs. Recommendations from the joint meeting were:

- NOAA Fisheries finalize as soon as possible the definition of the Zero Mortality Rate Goal (ZMRG)
- NOAA Fisheries and the USFWS, when collecting pathology data on stranded animals, collect life history data and voucher specimens, especially for unusual stranding events
- NOAA Fisheries and USFWS attempt to work with treaty tribes to collect information on takes of marine mammals so that it can be included in SARs
- NOAA Fisheries and USFWS make all efforts to document all takes of marine mammals, regardless of source
- NOAA Fisheries and USFWS: (a) publish all SARs every year; (b) review and revise as necessary the SARs for strategic stocks every year; and (c) review and revise as necessary the SARs for non-strategic stocks at least once every three years
- NOAA Fisheries establish: (a) specific reclassification criteria for all species or distinct populations segments listed as endangered or threatened under the ESA; and (b) specific declassification criteria for all stocks designated as depleted under the MMPA
- NOAA Fisheries convene a working group to develop a draft proposal for a standardized framework for assigning a recovery factor to endangered marine mammals

1999-2000 Stock Assessment Reports

Alaska

Hill, P. S. and D.P. DeMaster. 1999. Alaska marine Mammal Stock Assessments, 1999. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-AFSC-110. 166 pp.

Ferrero, R.C., D.P. DeMaster, P.S. Hill, M.M. Muto, and A.L. Lopez. 2000. Alaska Marine Mammal Stock Assessments, 2000. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-AFSC-119. 191 pp.

Atlantic

Waring, G.T., D.L. Palka, P.J. Clapham, S. Swartz, M. C. Rossman, T.V.N. Cole, L.J. Hansen, K.D. Bisack, K.D. Mullin, R.S. Wells, D.K. Odell, and N.B. Barros. 1999. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 1999. U.S. Department of Commerce NOAA Technical Memorandum NMFS-NE-153. 196 pp.

Waring, G.T., J.M. Quintal, and S.L. Swartz (eds.). 2000. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 2000. U.S. Department of Commerce NOAA Technical Memorandum NMFS-NE-162. 303 pp.

Pacific

Forney, K.A., M.M. Muto, and J. Baker. 1999. U.S. Pacific Marine Mammal Stock Assessments: 1999. U.S. Department of Commerce NOAA Technical Memorandum NMFS-SWFSC-282. 62 pp.

K.A. Forney, J. Barlow, M.M. Muto, M. Lowry, J. Baker, G. Cameron, J. Mobley, C. Stinchcomb, and J.V. Carretta. 2000. U.S. Pacific Marine Mammal Stock Assessments: 2000. U.S. Department of Commerce NOAA Technical Memorandum NMFS-SWFSC-300. 276 pp.

- The phrase "management stock" replace "population stock" within the MMPA
- NOAA Fisheries uniformly apply the present PBR guidelines
- NOAA Fisheries and USFWS consistently implement guidelines for defining stocks of marine mammals
- Standardize and improve communications between SRGs and the agencies: (a) forwarding SRG recommendations to the Assistant Administrator for Fisheries or to the Director of the appropriate USFWS region; (b) posting minutes and reports from SRG meetings on NOAA Fisheries websites; (c) agencies provide substantive written response to all SRG recommendations in a timely manner; and (d) providing the SRGs with annual spending plans for the marine mammal program and
- NOAA Fisheries and USFWS secure additional funding for marine mammal research

A report of the meeting was prepared and published as the following document:

Merrick, R.L. (Compiler). 1999. Report of the Joint Scientific Review Group Workshop, April 13-14, 1999, Seattle, Washington. U.S. Department of Commerce NOAA Technical Memorandum NMFS-NE-154. 22 pp.

Alaska Scientific Review Group

Following its meeting in Juneau, Alaska, October 1999, the Alaska SRG forwarded two letters with recommendations to the Assistant Administrator for Fisheries. One letter concerned the status and conservation of the Cook Inlet stock of beluga whales, and the other letter transmitted other recommendations related to marine mammal research and conservation.

The letter related to beluga whales expressed issue-specific concerns of the SRG, summarized NOAA Fisheries efforts to conserve or to collect additional information on the stock, and made recommendations for additional work, including the following:

- Develop and implement a co-management agreement to maintain a carefully controlled subsistence harvest on the stock
- Continue and expand tracking Cook Inlet belugas with satellite-linked tags
- Use a recovery factor of 0.1 in calculating the PBR for this stock

The recommendations in the second letter included the following:

- Use available data on life history characteristics of Dall's porpoise to estimate a value of R_{max} for this species and other cetaceans with similar biological traits

- Develop and implement a standardized system for recording marine mammal serious injuries and mortalities from all kinds of human interactions
- In consultation with the SRG, develop criteria for determining when to change from default values to a data-based value for R_{max}
- Work with Alaska Native marine mammal commissions to establish a co-management agreement for subsistence harvest monitoring programs for harbor seals and Steller sea lions and
- Continue the Alaska observer program in Cook Inlet for an additional year with the following priorities for subsequent years: (1) Kodiak and Yakutat salmon setnet fisheries; (2) Southeast Alaska salmon driftnet and purse seine fisheries; and (3) Bristol Bay salmon set and driftnet fisheries.

The Alaska SRG met again in November 2000 in Juneau, Alaska. Discussion during that meeting was focused primarily on Alaska harbor seals, with emphasis on molecular genetics for stock structure analyses and factors related to haulout behavior (with corresponding effects on counts). The SRG also reviewed drafts of the 2001 stock assessment reports prior to their release for public review and comment.

Recommendations from the November 2000 meeting included the following:

- NOAA Fisheries should: (1) complete the harbor seal genetics studies, including additional sampling where necessary to support stock structure analyses and (2) use the results from molecular genetics to redefine harbor seal stock boundaries
- Reconsider the presently used method of calculating PBR for central North Pacific humpback whales by calculating separate values for feeding concentrations of whales
- Re-evaluate the status of the northern fur seal and report the results of this analysis at a future meeting and
- Revise stock structure (and SARs) for killer whale stocks in the North Pacific



Atlantic Scientific Review Group

The Atlantic SRG met in Woods Hole, Massachusetts in November 1999. The SRG submitted the following recommendations to NOAA Fisheries:

- Do not use funds appropriated to support MMPA and ESA implementation for labor costs
- Take expeditious action to reduce anthropogenic sources of mortality and serious injury in the range of the Northern right whale
- Examine the spotted dolphin complex in the Western North Atlantic in greater detail, with expeditious processing of existing genetics samples
- Develop a preliminary estimate of bottlenose dolphin abundance in the mid-Atlantic with data from the 1998 and 1999 *Gordon Gunter* surveys
- NOAA Fisheries Southeast Fisheries Science Center (SEFSC) should conduct a survey of the coastal Western North Atlantic stock of bottlenose dolphins in FY2000 that includes biopsy sampling for stock structure analyses, with survey design developed in consultation with scientists from other science centers

The list of recommendations also included additional items that addressed stock assessment reports and are not included here.

In November 2000, the Atlantic SRG met in Lajas, Puerto Rico where discussion centered around marine mammal research and conservation in Puerto Rico and Western North Atlantic coastal bottlenose dolphins. Recommendations from the SRG to NOAA Fisheries included the following:

- Conduct research as soon as possible to systematically obtain genetic samples and photo-identification data for bottlenose dolphins in the coastal waters from the Florida-Georgia border, northward to the northernmost extreme of bottlenose dolphin distribution, and between shore and the 35-m depth contour
- Convene the planned Take Reduction Team on bottlenose dolphins to reduce bycatch even in the absence of revised population information
- Conduct field tests on surrogate species to determine the effects of such tags on the health and welfare of individual whales prior to further research involving implantable tags on Northern right whales
- Determine the stock identification for harbor porpoises observed off Southwest Nova Scotia
- Conduct a comparison of temporal trends in (1) data on fishing effort from logbooks, (2) swordfish landings data, and (3) estimates of catch per unit effort and request data on

incidental takes of U.S. marine mammal stocks by Canadian and other non-U.S. longline fishing fleets (through the International Convention for the Conservation of Atlantic Tunas)

- Use consistent scoring of human interactions across stranding cases, using published protocols; report, audit and use these data to a greater extent to identify areas where observer programs should be conducted
- NOAA Fisheries Northeast Fisheries Science Center (NEFSC) conduct power analyses to determine the appropriate level of observer coverage required to measure and monitor success in achieving the goals of the Harbor Porpoise Take Reduction Plan
- Distribute reports describing the unusual beaked whale strandings during 2000 in a timely manner to the Regions and Centers responsible for assessing the affected stocks
- NEFSC investigate the possible effects of re-allocating observed takes in the Gulf of Maine sink gillnet fishery made in strings of nets with non-functioning pingers to the bycatch rate of non-pingered nets
- NEFSC use existing sighting data to generate a line transect of abundance for Northern right whales in the Gulf of Maine and compare this estimate to the census for Northern right whales in the North Atlantic Right Whale Consortium's identification catalog
- In consultation with local researchers and managers, develop a scientific plan for cetacean stocks in Puerto Rico and the U.S. Virgin Islands to define objectives and information needs required under the MMPA and Endangered Species Act (ESA)

The SRG also commended the SEFSC for developing a cooperative agreement with Minerals Management Service and the U.S. Navy to augment limited funds to support marine mammal assessments in the Gulf of Mexico.

Pacific Scientific Review Group

The Pacific SRG met in conjunction with the biennial meeting of the Society for Marine Mammalogy in Maui, Hawaii, in December 1999. The Pacific SRG made the following recommendations to NOAA Fisheries during the meeting:

- More research is needed on sperm whales in the North Pacific to: (1) apply the sperm whale group size correction factor to the abundance estimates from recent surveys; (2) determine stock structure and boundaries by increasing tissue sampling for genetic analyses; and (3) expand future surveys offshore and northward through the Gulf of Alaska

- Conduct a comprehensive survey of the Hawaiian archipelago to obtain information on the abundance and status of Hawaiian cetacean stocks
- Recategorize the Hawaiian longline fishery from Category III to Category II (although it could be Category I because observer data indicate that the incidental mortality of false killer whales exceeds the PBR for that stock)
- Conduct research on pilot whales to investigate the virtual disappearance of pilot whales from areas near the California coast
- Continue to study the recruitment of marine debris into the reefs and waters surrounding Hawaiian monk seal rookeries, and continue removing debris to reduce the risk of Hawaiian monk seal entanglement
- Revise the current stock boundaries for Pacific Coast harbor porpoise, based upon current genetics data and information on harbor porpoise densities, research survey data, and fisheries information
- Consider the Central California harbor porpoise as a strategic stock and continue the observer program of the Monterey Bay shark/halibut gillnet fishery
- The Working Group on Recovery Factors (see recommendations from the Joint SRG meeting, above) should prepare guidelines for using alternatives to the default recovery factors for endangered species and adopt these guidelines for the 2001 SARs

The Pacific SRG met again in November 2000 in Astoria, Oregon. The following recommendations, many of which reiterated recommendations the group made in November 1999, were submitted to NOAA Fisheries:

- More research is needed to determine stock structure and boundaries of sperm whales in the Northern Pacific by increasing tissue sample collection and expanding future surveys offshore and northward
- Conduct a comprehensive survey of the Hawaiian archipelago on the abundance and status of Hawaiian cetacean stocks
- Initiate smaller-scale research projects to assist in monitoring dolphin mortality and trends in abundance in Hawaiian waters
- Recategorize the Hawaiian longline fishery from Category III to Category I due to mortality of false killer whales
- Obtain better abundance estimates for false killer whales to calculate a reliable value for PBR of that stock
- The Working Group on Recovery Factors should prepare guidelines for alternative recovery factors for endangered species

- NOAA Fisheries should complete its analysis of fishery progress toward the ZMRG and have the analysis reviewed by the SRG in advance of the statutory guideline for achieving the ZMRG

Marine Mammal Stock Assessment Reports

The MMPA requires NOAA Fisheries and USFWS to review the stock assessment reports annually for strategic stocks of marine mammals and every three years for stocks determined to be non-strategic and revise them with any new information. In 1999 and 2000, NOAA Fisheries revised those reports for which significant new information was available. Updated SAPs are available on-line at:

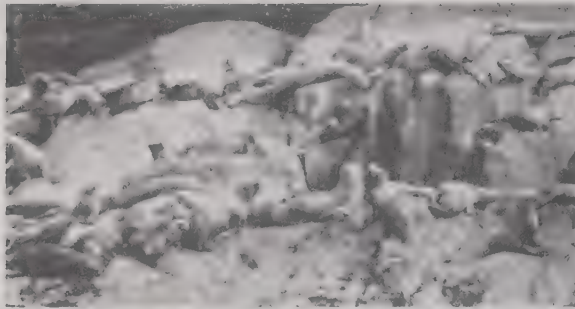
http://www.nmfs.noaa.gov/pr/PR2/Stock_Assessment_Program/sars.html

Alaska Stock Assessment Reports

For 1999, NOAA Fisheries, in conjunction with the Alaska SRG, reviewed information available for all strategic stocks of Alaska marine mammals under its authority, as well as for several other stocks. A total of 13 of the 33 Alaska SAPs were revised for 1999. Most proposed changes to the SAPs incorporated new information into mortality estimates. The revised SAPs included Western U.S. Steller sea lions, Eastern U.S. Steller sea lions, all five beluga whale stocks (Cook Inlet, Bristol Bay, Eastern Bering Sea, Eastern Chukchi Sea, and Beaufort Sea), Western North Pacific humpback whales, Central North Pacific humpback whales, Baird's beaked whales, Stejneger's beaked whales, and Cuvier's beaked whales. In addition, the SAP for the Eastern North Pacific transient killer whale stock was revised and moved to the Pacific region document. The new information on abundance and mortality did not change the status (strategic or not) of any of these 13 Alaska stocks relative to the last time the respective SAP was revised (1996 or 1998).

Fishery mortality sections in the revised reports were updated to include observer programs, fisher self-reporting, and stranding data through 1997, where possible. Similarly, subsistence harvest information through 1997 was included for those stocks that are taken by Alaska Natives for subsistence purposes. New abundance estimates were available and were included in the revised assessments for two stocks: Western U.S. Steller sea lions and Cook Inlet beluga whales. New PBR estimates were calculated for those stocks having new abundance estimates.

For the 2000 SAPs, NOAA Fisheries, in conjunction with the Alaska SRG, reviewed information for all strategic stocks of Alaska marine mammals as well as Pacific white-sided dolphins, harbor porpoise (3 stocks), Dall's porpoise, and gray whales. A total of 14 of the 32



Alaska SAPs were revised for 2000. These reports are identified by a November 1, 1999 date-stamp at the beginning of each report.

Most proposed changes to the SAPs incorporated new information into mortality estimates. New PBR estimates were calculated for those stocks having new abundance estimates. The new information on abundance and mortality did not change the status (strategic or not) of any of the Alaska stocks relative to the last time the respective SAP was revised.

As recommended by the Alaska SRG, NOAA Fisheries changed the recovery factor for the Cook Inlet stock of beluga whales. The recovery factor for this stock decreased from 0.5 to 0.3. The Alaska SRG recommended a recovery factor of 0.1 be incorporated into the 2000 report. However, three significant pieces of information resulted in the recovery factor remaining 0.3. First, the Alaska Natives in the Cook Inlet area are cooperating to control the harvest, and no belugas were killed for subsistence in 1999. Second, the 1999 surveys indicate that the decline of the stock has abated. Third, the first year of observer coverage reported no belugas taken in Cook Inlet fisheries, suggesting that mortality incidental to commercial fishing does not appear to be a significant factor affecting the Cook Inlet beluga stock. Therefore, NOAA Fisheries intends to use a recovery factor of 0.3 until additional information indicates that a revision is warranted.

The proposed minimum population estimate for the North Pacific stock of Pacific white-sided dolphins was reduced from 486,719 animals to 26,880 animals, which would reduce the PBR from 4,867 animals to 269 animals. The minimum population estimate of 486,719 animals was based on an abundance estimate that reflected the range-wide estimate of Pacific white-sided dolphins, rather than one that could be applied just to the North Pacific stock. The full estimate was not considered appropriate to apply to the North Pacific management stock, but the portion of the estimate

derived from sightings north of 45°N in the Gulf of Alaska was used as the population estimate for this stock, yielding the proposed minimum population estimate of 26,880 animals.

Appendix A, Table 1 –Summary table of Alaska marine mammal stocks and changes to the report in 2000. Marine mammal SAPs that were revised relative to the 1999 reports, and that have draft 2000 SAPs available, are identified by a November 11, 1999 date of last revision. Changes to the estimates of abundance, human-caused mortality, and other items are also indicated.

Atlantic Stock Assessment Reports

The 1999 Atlantic SAPs (including the Gulf of Mexico) were prepared by staff of the NEFSC and SEFSC. NOAA Fisheries staff presented the Reports at the November 1998 meeting of the Atlantic SRG and subsequent revisions were based on their contributions and constructive criticism.

Major revisions and updating of the SAPs were completed only for Atlantic Coast strategic stocks and Atlantic Coast and Gulf of Mexico stocks for which significant new information was available. The stock definitions were changed for four Atlantic stocks (Sei whale, gray, harp and hooded seal) based on stock area definitions used by international scientific organizations (i.e., the International Whaling Commission and the International Council for Exploration of the Sea).

A total of 31 of the 60 Atlantic and Gulf of Mexico SAPs were revised for 1999. Most proposed changes incorporated new information into mortality estimates. The revised SAPs included 14 strategic and 17 non-strategic stocks. Information on human interactions (fishery and ship strikes) with the Northern right whale, North Atlantic humpback whale, and Canadian East Coast minke whale stocks were re-reviewed and updated. Further, the status of three western North Atlantic stocks (Atlantic spotted dolphin, Pantropical spotted dolphin, and dwarf sperm whale) were changed to non-strategic because the five-year (1993-1997) mean annual mortalities in fishing operations were below PBR. Conversely, the Western North Atlantic stock of long-finned pilot whale was changed to strategic.

For 2000, Atlantic and Gulf of Mexico SAPs were prepared by staff of the NEFSC and SEFSC. The reports were presented at the November 1999 meeting of the Atlantic SRG, and subsequent revisions were based on the group's advice. The 2000 SAPs contain updated assessments of Atlantic strategic stocks and for Atlantic and Gulf of Mexico stocks for which new information was available.

A total of 28 of the 60 Atlantic and Gulf of Mexico SARs were revised for 2000. Most of the proposed changes incorporate new information into sections on population size and mortality estimates. The revised reports include 15 strategic and 13 non-strategic stocks. For the first time, individual species abundance estimates were available for the Western North Atlantic stocks of Atlantic spotted and Pantropical spotted dolphins. Based on recent modeling that suggests that the population of the Western North Atlantic stock of Northern right whales is in decline, the maximum net productivity for this stock was estimated as zero and, therefore, PBR for this stock was reduced to zero. This decrease changed the focus of the Atlantic Large Whale Take Reduction Team from concentrating on reducing to eliminating the incidental mortality and serious injury of right whales. Information on human interactions (fishery and ship strikes) with the Northern right whale, humpback whale, fin whale, and minke whale stocks were reviewed and updated.

The stock definition for humpback whales was changed from the North Atlantic stock to the Gulf of Maine stock, based on genetic analysis and the fidelity of whales to this region for feeding. Although the stock structure was revised, the abundance estimate remained the same as for the entire North Atlantic aggregation of humpback whales. Existing data did not allow NOAA Fisheries to separately estimate abundance for the Gulf of Maine feeding stock.

The Western North Atlantic stock of long-finned pilot whales was changed to "strategic" based on the annual incidental mortality estimate.

Appendix A, Table 2- Summary table of Atlantic and Gulf of Mexico marine mammal stocks and changes for 2000. Marine mammal SAPs that were revised relative to the 1999 reports, and that have 2000 SAPs available, are identified by a September 2000 date of last revision. Changes to the estimates of abundance, human-caused mortality, and other items are also indicated.

Pacific Stock Assessment Reports

For 1999, NOAA Fisheries reviewed new information pertaining to the status of all stocks within the Pacific Region (including Hawaii) and, in consultation with the Pacific SRG, decided there was sufficient new information to warrant the revision of 11 SAPs. The draft assessment reports for 1999 include four written by the National Marine Mammal Laboratory (NMML), including the Oregon and Washington Coast harbor porpoise, Inland Washington harbor porpoise, Eastern North Pacific Southern resident killer whale and Eastern North Pacific transient killer whale. The Southwest Fisheries Science Center prepared stock assessments for the following seven stocks: Hawaiian monk seal, Central

California harbor porpoise, Northern California harbor porpoise, Eastern North Pacific offshore killer whale, California/Oregon/ Washington short-finned pilot whale, California/Oregon/Washington sperm whale, and California/Oregon/Washington-Mexico humpback whale.



*breaching humpback whale
S. Swartz, NOAA Fisheries file photo*

In the 1999 SAPs, fishery mortality sections were updated to include information on fishery mortality, fisher self-reporting, and stranding data through 1997, where possible. New abundance estimates were available and included for 10 of the 11 stocks. Additional information on historic whaling has been included for sperm whales, and several distribution maps have been revised to include survey data through 1996 and to exclude outdated data from the 1970s and early 1980s. The recovery factor was revised for four stocks (Central California harbor porpoise, California/Oregon/Washington short-finned pilot whale, Eastern North Pacific southern resident killer whale and Eastern North Pacific transient killer whale). The previous California/Oregon/Washington killer whale stock was eliminated, based on new information on stock structure of Eastern North Pacific killer whales. The animals from this stock were divided between two other stocks: (1) the existing Eastern North Pacific transient stock, whose range description has been expanded southward to include California, and (2) a new 'Eastern North Pacific Offshore' stock, ranging from Southeast Alaska to California. The Eastern North Pacific transient killer whale stock, which was previously published in the SAPs for the Alaska Region, was also moved and included with the 1999 Pacific Region reports.

There were no changes in the status of any of the 11 Pacific Region stocks, with four remaining strategic and seven non-strategic. The four strategic stocks included three stocks of endangered species that are automatically considered strategic, and the California/Oregon/Washington short-finned pilot whale, for which a take reduction plan was implemented.

For 2000, NOAA Fisheries revised all stock assessments for Pacific marine mammal stocks under NOAA Fisheries jurisdiction. New abundance estimates are available and have been included for ten Hawaiian stocks and 25 U.S. West Coast stocks. The assessments in the appendices of this annual report include stocks studied by the Southwest Fisheries Science Center and the NMML. The Pacific and Alaska SRGs reviewed and commented on earlier versions of these draft SAPs.

Mortality estimates for the California drift gillnet fishery were based on data from 1997-1998 because entanglement rates of marine mammals decreased after implementation of the Take Reduction Plan in 1997. In 2000, the California/Oregon/Washington stock of short-finned pilot whales was classified as not strategic. Including driftnet mortality only for years after implementation of the Take Reduction Plan (1997-1998), the average annual human-caused mortality in 1997-1998 (three animals) was estimated to be less than the PBR, and, therefore, they were not classified as strategic.

The Central California stock of harbor porpoise was classified as strategic because of increased mortality from the halibut set gillnet fishery. The average annual mortality for 1996-1998 was greater than the calculated PBR for Central California harbor porpoise. Based on the success of reducing harbor porpoise mortality in East Coast fisheries, NOAA Fisheries encouraged voluntary use of pingers in the Central California set gillnet fishery. The observer program for this fishery was continued to provide information on the success of the voluntary measures.

The Hawaii stock of false killer whales was listed as strategic because the rate of serious injury to false killer whales within the U.S. Exclusive Economic Zone in the Hawaii longline fishery exceeds the PBR. However, the available abundance estimate, on which PBR was based, included only a portion of the species' range in Hawaiian waters. Additional studies of abundance, distribution, and fishery-related mortality would be required to re-evaluate this species' status in the future.

The SAP for the California/Oregon/Washington stock of dwarf sperm whale was discontinued. The lack of reliable sighting or stranding records off the U.S. West Coast since the 1970s suggested the stock did not occur in waters under U.S. jurisdiction on a regular basis.

The stock of blue whale formerly known as the 'California/Mexico stock' was renamed the 'Eastern North Pacific stock' to reflect current knowledge of whale movements between the U.S. West Coast and the Eastern Tropical Pacific. (Mate *et al.*, 1999; Stafford *et al.*, 1999)

Appendix A, Table 3 - Summary table of Pacific marine mammal stock changes during 2000. All of the Pacific marine mammal stocks under NOAA Fisheries jurisdiction were revised relative to the 1999 reports, and have 2000 SAPs available. Changes to the estimates of abundance, human-caused mortality, and other items are also indicated.

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conservation and recovery

This chapter summarizes species conservation and research activities, for four stocks of special concern, undertaken by NOAA Fisheries in 1999 and 2000 pursuant to the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA).

Steller Sea Lion

Steller sea lion distribution extends along the North Pacific Ocean rim from the Kuril Islands and Okhotsk Sea and South along the North American coast to California, with centers of abundance and distribution in the Gulf of Alaska and Aleutian Islands. Since the 1970s, the Steller sea lion has declined by 80% or more throughout much of its range in the Gulf of Alaska (GOA) and Bering Sea/Aleutian Islands Region (BSAI).

As a result of the decline, the entire species was listed as threatened under the ESA in 1990. The most recent counts suggest that within the central part of this range (from the Kenai Peninsula to Kiska Island in the Western Aleutian Islands), abundance declined by 27% from 1990 to 1998. Between 1994 and 1998, counts of non-pup sea lions at rookeries and haulouts of the western population declined by 13%; counts of pups at trend sites declined by almost 20% in the same interval. In 1997, the species was split into two management populations, and the western population was reclassified as endangered.

Multiple factors are believed to have contributed to the overall decline since the 1970s. The major impacts to the decrease of the population have resulted from incidental catches (prior to the mid-1980s) and from a reduction in carrying capacity, which may have resulted from basic environmental changes and/or competition for prey with fisheries producing a reduction in available prey. Other factors such as commercial harvests, disease, subsistence harvests, shooting, and disturbance, have been determined as producing minor effects to the Steller sea lion population. Steller sea lion researchers and resource managers alike continue their efforts today to delineate causes for the decline and to determine effective management tools for their recovery. Current progress toward these goals is discussed below.

Research Activities in 1999 and 2000

NOAA Fisheries, the Alaska Department of Fish and Game (ADFG), the North Pacific Universities Marine Mammal Research Consortium, the Alaska SeaLife Center, and others continued a cooperative research program to



monitor population trends and elucidate the cause or causes of the Steller sea lion decline.

Since the listing of the Steller sea lion in 1990, NOAA Fisheries and the ADFG have conducted subadult/adult and pup surveys to assess Steller sea lion populations. Results of these population assessment surveys are published routinely as part of the NOAA Technical Memorandum series on Steller sea lion abundance estimates. Each year, results of aerial and land-based surveys are presented to the North Pacific Fisheries Management Council (NPFMC).

Population Assessments

NOAA Fisheries and ADFG conducted aerial and land-based surveys of Steller sea lions in Alaska during July 1999 and June 2000. The 1999 aerial survey was restricted to the eastern Gulf of Alaska, where 2,072 non-pup Steller sea lions were counted on 23 rookery and haul-out sites. The June 2000 counts resulted in a total of 37,801 non-pups on 289 rookery and haul-out sites from Southeast Alaska through the western Aleutian Islands. Of these non-pups Alaska-wide, 28,187 were on the 94 trend rookery and haul-out sites, which represented a decline of 3.2% from 1998 and 26.1% from 1990. The 33 trend rookeries Alaska wide included 20,298 non-pups, indicating declines of 3.8% from the 1998 count and 26.4% from 1990. Estimated average annual rates of decline from 1990 to 2000 were 3.2% for all trend sites and 3.3% for the 33 trend rookeries.



Most of the sites surveyed in 2000 (264 of 289 sites) were part of the Western stock, which includes animals from the Eastern GOA (144E-W) through the Western Aleutian Islands. The June 2000 count of 25,384 non-pups at all 264 sites in the Western stock indicated declines of 13.9% from 1998 and 31.7% from 1991, with an estimated annual decline of 4.0%. At 82 rookery and haul-out trend sites in the Western stock, the June 2000 count of 18,325 represented declines of 10.3% from 1998 and 40.0% from 1990. The 13,402 non-pups at the 30 Western-stock trend rookeries indicated declines of 18.5% from 1998 and 39.9% from 1990. The estimated average annual decline from 1990 to 2000 was 5.1% for all Western-stock trend sites, as well as for Western stock trend rookeries.

In the Kenai Peninsula to Kiska Island index area, a subarea within the Alaska portion of the Western stock, 21,381 non-pups were counted at 227 surveyed sites, a decline of 12.3% from 1998 and 22.1% since 1991. Of these, 15,279 were at 69 trend sites (26 rookeries and 43 haulouts), and 11,738 were at 26 trend rookeries. These counts represented declines from 1998 to 2000 of 6.9% and 3.1% respectively, for all trend sites and for trend rookeries, and declines of 32.9% and 37.2% since 1990. Overall declines in the Kenai to Kiska areas have been more than 80% since 1976 and about 70% since 1985. Estimated annual rates of decline in the Kenai to Kiska index area were 2.5% for all 227 surveyed sites from 1991 to 2000, 3.9% for the 69 trend sites and 4.7% for the 26 trend rookeries from 1990 to 1998.

The Eastern stock is represented in Alaska only in Southeast Alaska, where 12,417 non-pups were counted at 25 sites in June 2000. The count of 9,862 non-pups at 12 trend sites represented increases of 13.4% from 1998 and 29.3% from 1990. At the three trend rookeries in Southeast Alaska, 6,896 non-pups were counted, which represented increases of 4.4% from 1998 and 25.6% from 1990. Estimated annual

increases from 1990 to 2000 in Southeast Alaska were 1.9% for all trend sites and 1.6% for trend rookeries.

NOAA Fisheries counted 1,924 live pups at nine rookeries and 75 live pups at three haul-out sites in Alaska during June and July 2000. Taken together, the number of pups at the nine rookeries declined by 4.1% from 1998 to 2000, but this decline represented a difference of only 83 pups.

Foraging Studies

Scientists from NOAA Fisheries and the USFWS continued research on prey biomass for Steller sea lions with echo integration-midwater trawl surveys aboard the USFWS vessel *Tiglax* in March 1999. Although rough seas limited the amount of research that was accomplished, surveys were conducted at sites near Kiska, Kasotchi, and Ugamak. Preliminary estimates indicated that midwater biomass was greatest at Ugamak rookery. Seabird and other marine mammal sightings were also recorded, along with oceanographic data.

In February and March 2000, scientists from NOAA Fisheries and the USFWS again conducted field work aboard the vessel *Tila*, with a primary goal of capturing juvenile and pup sea lions for collection of blood and other biological samples and for deployment of satellite-linked time/depth recorders. Much of the field work was conducted under storm or gale-warning flags due to a series of low-pressure weather systems in the area. Scientists captured nine pup and yearling sea lions and deployed VHF transmitters and time/depth recorders on eight of the nine captured animals. No electronic tags were attached to a small female pup captured at Sequam Island. Blood samples for serum, hematocrit, and white cell counts were taken from all nine sea lions.

Marmot Island Field Studies

A 20-year study of sea lions at Marmot Island by NOAA Fisheries and ADFG continued during 1999. Objectives of the 1999 field work were to continue monitoring the population of Steller sea lions through counts by age and sex class (territorial males, nonterritorial males, females, juveniles, and pups) and by resightings of branded and tagged animals. Approximately 750 pups were branded at Marmot Island during 1987 and 1988, and six of these were resighted during 1999.

Endangered Species Act Section 7 Consultations on Fishery Management Actions

On February 26, 1998, NOAA Fisheries concluded that the 1996 BO on the effects of the groundfish fishery on Steller sea lions remained valid for 1998.

On March 2, 1998, NOAA Fisheries issued a BO that evaluated the effects of the GOA Fishery Management Plan (FMP) and the 1998 pollock total allowable catch (TAC) specifications on the Steller sea lion. NOAA Fisheries concluded that the 1998 GOA fishery was not likely to jeopardize the continued existence and recovery of Steller sea lions or to adversely modify critical habitat. NOAA Fisheries noted that the BO only addressed the 1998 fishery, not the continued implementation of the GOA FMP beyond 1998, and that the NOAA Fisheries Alaska Region would need to reinitiate Section 7 consultation for the fishery in 1999 and beyond.

This opinion authorized the same incidental take level that was authorized in the 1996 opinion (15 Steller sea lions for the GOA). The authorization would be re-evaluated when additional data become available on the number of sea lions injured or killed annually by gear associated with this fishery. No reasonable or prudent alternatives to these management measures were identified. NOAA Fisheries was required to monitor the level of incidental take that occurred as a result of the 1998 GOA fishery and complete a report by March 15, 1999.

NOAA Fisheries included the following conservation recommendations in this BO: (1) initiate studies of the efficacy of buffer zones as soon as possible; (2) continue studies to determine the foraging range of young-of-the-year Steller sea lions; (3) continue to educate the fishing community about Steller sea lions and techniques to reduce or eliminate incidental take of the species; and (4) conduct studies of the site-by-site relation between fishing effort and trends in juvenile survival or counts at nearby rookeries.

On March 17, 1998, NOAA Fisheries issued regulations for amendments 36/39 to the Bering Sea and Aleutian Islands (BSAI) and GOA FMPs (63 FR 13009). This action created a forage fish species category in FMPs and implemented associated management measures. The Proposed Rule (62 FR 65402) stated that: (1) forage fish were important prey for marine mammals, seabirds, and commercially important groundfish species, and (2) decreases in the abundance of these predators may be related to declines in forage fish. Directed fishing for forage fish would be prohibited at all times in the Federal waters of the BSAI and GOA. The intended effect of this action was to prevent the development of a directed commercial fishery for forage fish.

On June 11, 1998, NOAA Fisheries issued a final rule to change the seasonal apportionment of the pollock TAC in the Western Central Regulatory Areas of the GOA by moving 10% of the TAC from the 3rd fishing season (starting September 1) to the 2nd fishing season (starting June 1) (63 FR 31939). This seasonal shift of TAC was a precautionary measure intended to reduce the potential impacts of pollock fishing on Steller sea lions by

reducing the percentage of the pollock TAC that is available to the fishery during the fall and winter months.

In June 1998, NPFMC recommended a regulatory amendment to the Secretary of Commerce that would impose an A/B season apportionment (50:50) of Atka mackerel TAC in each of the three management areas, and would incrementally shift the fishery catch until a target split of 40% inside critical habitat and 60% outside critical habitat was reached in 2002. Consequently, the proposed action included the conservation measures recommended by the NPFMC to avoid potential competition between the Atka mackerel fishery and the Steller sea lion. Those measures should reduce potential localized mackerel depletions by temporally dispersing the fishery into two seasons, and spatially dispersing the fishery among areas inside and outside of critical habitat. The subsequent division of the TAC among seasons and sites should reduce considerably the potential for localized depletion of prey resources at any particular point in time or space. The incremental approach to reductions of TAC in Steller sea lion critical habitat is reasonable since it allows some time for detection of unanticipated adverse effects that might result from redistribution of the fishery. As proposed, the conservation measures will be fully implemented by 2002. If these conservation measures are fully implemented, the proposed action should not appreciably reduce the likelihood of both the survival and recovery of the Steller sea lion.

On October 21, 1998, the President signed into law the American Fisheries Act (AFA), which changed the allocation scheme for pollock in the BSAI beginning in 1999 (46 U.S.C. 2101, PL 105-277).

On December 3, 1998, NOAA Fisheries issued a BO on three fisheries proposed for 1999-2002: (1) authorization of an Atka mackerel fishery from 1999 to 2002 under the Groundfish Management Plan of the BSAI area; (2) authorization of a pollock fishery from 1999 to 2002 under the Groundfish FMP of the BSAI; and (3) authorization of a walleye pollock fishery from 1999 to 2002 under the Groundfish Management Plan of the GOA.

The BO concluded that the Atka mackerel fishery was not likely to jeopardize the endangered Western population of Steller sea lions or destroy or adversely modify its designated critical habitat, but the pollock fisheries of the GOA and BSAI, as proposed for 1999-2002, were likely to jeopardize the Western stock of Steller sea lions and destroy or adversely modify its critical habitat. The opinion analyzed the effects of these actions on the endangered Western population of Steller sea lions and its critical habitat.

The BO did not prescribe a single set of Reasonable and Prudent Alternatives (RPAs), but rather established a framework to avoid the likelihood of management

actions and FMPs jeopardizing the continued existence and recovery of Steller sea lions. This framework included guidelines for management measures to achieve three principles: (1) protection of waters adjacent to rookeries and haulouts; (2) temporal dispersion of the pollock fisheries; and (3) spatial dispersion of the fisheries. The intended combined effect of these three principles was to modify the fisheries to avoid jeopardy and adverse modification.

On December 13, 1998, the NPFMC recommended management measures for the two pollock fisheries to comply, in part, with the framework established in the NOAA Fisheries December 3, 1998 opinion. On December 16, 1998, NOAA Fisheries adopted the measures recommended by the NPFMC (with modifications) into the BO as part of a RPAs for the fisheries.

On December 23, 1999, NOAA Fisheries issued a BO on the authorization of the BSAI and GOA groundfish fisheries based on TAC specifications recommended by the Council for 2000, and on authorization of the fisheries based on statutes, regulations, and management measures to implement the AFA. The opinion concluded that based on the 2000 TAC Specifications and implementation of the AFA, the groundfish fisheries would not cause jeopardy or adverse modifications for listed species or their critical habitat.

On November 30, 2000, NOAA Fisheries completed a BO on the authorization of the groundfish fisheries in the BSAI under the FMP for BSAI groundfish and the authorization of groundfish fisheries in the GOA under the FMP for groundfish of the GOA. The opinion was comprehensive in scope and considered the fisheries and the overall management framework established by the respective FMPs to determine whether that framework contained necessary measures to ensure the protection of listed species and their critical habitat. The BO determined that the BSAI or GOA groundfish fisheries, as implemented under the respective FMPs, jeopardized the continued existence of the Western population of Steller sea lions and adversely modified their critical habitat. The BO provided a set of RPAs to be partially implemented in 2001.



Hawaiian Monk Seal

Background And Objectives

The goal of the Hawaiian monk seal research program is to enhance recovery of the critically endangered Hawaiian monk seal population.

Major objectives of the program are to:

- 1) Monitor and assess the six main monk seal reproductive subpopulations on the Northwestern Hawaiian Islands (NWHI),
- 2) Study the ecology, biology, and natural history of the Hawaiian monk seal.
- 3) Investigate and mitigate factors impeding the recovery of this critically endangered species.

The Hawaiian monk seal is the only endangered marine mammal residing entirely within U.S. waters, and its future is in grave jeopardy. Beach counts (a historical index of abundance) have declined by 60% since the late 1950s, and 4% to 5% annually from 1985 to 1993. Counts stabilized from 1993 to 1999, but will likely continue to decline in the near future due to high juvenile mortality and low reproductive recruitment at French Frigate Shoals (FFS), the largest of the six main NWHI reproductive subpopulations. In 1976, the species was listed as endangered under the ESA. Although the population remains at critically low numbers, the recent stabilization of population trends has been facilitated by mitigation efforts to enhance survival of females and by natural recruitment.

Elements influencing population growth vary by reproductive site. Naturally occurring factors that have or may impede population growth include shark predation, male aggression toward adult females and immature seals of both sexes, habitat degradation due

to storms and high seas, disease, and reduced prey availability. Anthropogenic factors that have limited population growth include entanglement in marine debris and human disturbance.

The Hawaiian Monk Seal Program has identified five critical elements for the recovery and conservation of the endangered Hawaiian monk seal: (1) Population Assessment, (2) Foraging Ecology, (3) Health and Disease Assessment, (4) Documentation and Mitigation of Impacts, and (5) Public Outreach and Education. The need to implement all of these high priority projects is consistent with the recommendations of the Hawaiian Monk Seal Recovery Team (HMSRT), the Marine Mammal Commission (MMC), the Southwest Fisheries Science Center (SWFSC), and the Marine Mammal Recovery Program (MMRP) of the Honolulu Laboratory.

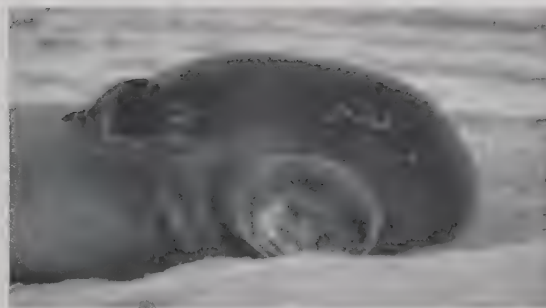
Population Assessment and Monitoring

Population assessment and monitoring is a critical and ongoing project at all main reproductive locations—FFS, Laysan (LAY) and Lisianski (LIS) Islands, Pearl and Hermes Reef (PHR), and Midway (MID) and Kure (KUR) Atolls. Research efforts focus on assessing population abundance, trends, survival, and age/sex composition. This research is essential for identifying sites where population growth is limited and for assessing consequences of mitigation efforts to enhance population growth. Data from this work are also required for population modeling to predict the outcome of possible management strategies designed to enhance the recovery of the species. Assessment activities were initiated in the early 1980s, and progress to date has been extensive, with many successes.

Current abundance of Hawaiian monk seals is estimated to be approximately 1,300–1,400. To estimate abundance all individual seals identified in a given year at the six main subpopulations are summed. To this are added estimates of the relatively small number of animals at Necker Island, Nihoa Island, and the main Hawaiian Islands (MHI). These estimates are based on relatively scant data available from comparatively small population centers. In recent years, the total abundance estimate has been slightly more than 1,400 individuals, 90% or more of which are typically counted at the six main breeding subpopulations. Because the total number of seals identified is tallied after nearly all pups are born, it is recognized that at any given time throughout the year, total abundance will be reduced by natural mortality, especially among young-of-the-year. Recognizing this, 1,300–1,400 is a reasonable estimate of total abundance.

Trends in Subpopulation Growth

The primary indices of historical population abundance trends at each of the six main reproductive subpopula-



tions are beach counts. Beach counts consist of the average annual number of seals on the beach during censuses. The censuses consist of timed, standardized counts during which an entire island or atoll is surveyed for seals. Identified individuals are counted only once during the survey. The resulting counts do not reflect total population size, but provide an index of population size collected consistently between years and locations. Data collected on each seal observed during censuses include size class (pup, juvenile, subadult, or adult), sex, island location, body condition (a subjective estimate; e.g., fat or thin), individual identity, and molt status. Single atoll-wide censuses at locations with more than a single island (FFS, PHR, MID, and KUR) are completed within a two-day period.

Individual Identification

Throughout the field season, individual seals are identified by plastic tags, bleach marks, scars, or natural markings. After weaning, pups are tagged on each hind flipper with colored plastic tags uniquely coded to indicate island or atoll population, year of birth, and individual identity. In addition, Passive Integrated Transponders or PIT tags are implanted subcutaneously in the dorsum of most weaned pups.

Colored plastic Temple Tags have been applied to nearly all weaned pups since the early 1980s. Since 1991, PIT tags have also been implanted in the ankle (1991) or the dorsum (all subsequent years) of most weaned pups. Older seals, which were never tagged previously or have lost or broken tags, are opportunistically tagged with both plastic flipper tags and PIT tags. Seals are also bleach-marked for individual identification at all sites except FFS, where bleaching the entire population of seals has been impractical until recently. At LAY and LIS, nursing pups are also bleached prior to molt. Tags, scars, natural markings, and any applied bleach marks are sketched on an individual scar card, which is revised throughout the field season to maintain a current description of the identifying marks of each seal. Photographs of scars and natural markings are added to individual identification files begun during the early 1980s.

Population Size

Population size and composition are determined at locations where all seals have been identified (i.e., observers no longer encounter unidentified seals). These statistics include all individuals seen alive at the location during March through August and parturition status data for females and their pups. If a seal is observed at more than one location during March-August, it is assigned to only one population total according to standardized criteria.

Identification of all individuals is the preferred method for monitoring population trends, and this is the goal for all subpopulations. However, given that identification effort has until recently been spatially and temporally variable, beach counts remain the most accurate way to assess historical trends in population abundance.

In 1999, the overall trend in abundance of monk seals in the NWHI remained stable. Juvenile survival at FFS and LIS increased, while rates at other sites remained consistent with previous years. The number of pups that weaned and were tagged at FFS in 1998 ($n = 88$) was higher than in any other cohort since 1989, due in part to the translocation of two aggressive males from FFS to Johnston Atoll. Fortunately, this cohort also had improved survival from tagging to age-1 (53% compared to 14% for the 1997 cohort).

The total number of pups born in the six main reproductive subpopulations remained relatively high (243), with more born at LAY (58) and LIS (33) Islands than in any previous year on record. Unfortunately, while the number of pups born at FFS in 1999 was typical, high losses, most probably due to shark predation near Trig and Whaleskate Islands, seriously reduced this cohort.

Reproductive Rates

Parturient females were identified, as above, and birth and weaning information was recorded. Because parturient females occasionally foster pups other than their own, efforts are made to identify pups and document changes in nursing relationships from birth to weaning. Pup fostering occurs when two lactating females exchange pups or when a lactating female suckles multiple pups. Consistent field effort to determine age-specific reproductive rates is available from LAY and FFS, and to a lesser extent, LIS. At PHR and KUR, many pups are already weaned when logistics necessitate deployment of research camps so that the identity of mothers is largely unknown. Until recently, few pups have been born at MID. However, currently virtually all mothers at that site are identified.

Survival Rates

Identification of individual known-aged seals on an annual basis allows for estimation of age- and cohort-

specific survival rates using standard Jolly-Seber estimation methods. The probability of resighting an individual seal at some time during a field season given that seal is alive (i.e., the sighting probability, p) is typically greater than 90% for all ages and locations. In addition to annual survival rates, survival of pups from birth to weaning is also monitored.

Factors that influence survival of individual seals are also recorded. These include injuries from conspecifics, large sharks, etc. Injuries are documented according to standardized categories of severity. Entanglement in marine debris, emaciation, and certain male mounting events are recorded as potentially affecting survival. A seal is considered dead if its carcass is observed. A seal is listed as probably dead if it sustains severe injuries or is emaciated (with skeletal structure clearly evident) and subsequently disappears. In addition, to place a seal in the probably dead category, observation of the individual in a deteriorating or moribund condition is required. Nursing pups were listed as probably dead if they disappeared within three weeks of birth.

Trends In Weaned Pup Girth and Length

Straight dorsal length and axillary girth of weaned pups were measured as soon after weaning as possible to determine pup condition. In particular, the girth of pups at weaning provides a measure of the ability of mothers to provision pups for growth and with energy stores. This, in turn, is used as an index of prey availability to pregnant females. Only pups known to have been measured within two weeks of weaning are included in analysis of trends in pup condition among sites and over time. Trends in weaned pup girths continue to increase in the Eastern populations (FFS, LAY, and LIS) and have shown little change in the remaining populations to the West.

Prey Abundance

Relative changes in abundance of reef fish at fixed stations have been surveyed annually at FFS and MID since 1995. Changes in herbivorous and carnivorous fish abundance are monitored and used to track potential changes in the abundance of monk seal prey. Monitoring included fish numbers, biomass, and size composition. Studies have also been initiated to identify potential linkages between environmental change, oceanographic productivity, and monk seal prey abundance. In 1998, surveys at FFS were extended to deeper slopes (60 m) to include fish communities in habitat where monk seals are known to forage.

Future Research Related to Foraging Ecology

Future work will involve continued characterization and assessment of monk seal habitat use, diet, and prey abundance. This research is vital for identifying and evaluating future recovery efforts and will focus on issues stemming from concerns associated with possible interactions between commercial fisheries and Hawaiian monk seals. Habitat use will be characterized through the use of time-depth recorders, CRITTERCAMS, and satellite and radio telemetry. Prey consumption will be assessed through scat/regurgitate analysis, and the use of fatty acid signature analysis will be fully explored to assess the relative importance of lobster and other prey in the monk seals' diet. Prey abundance will be monitored during ongoing reef fish surveys, and the results will be examined for potential relationships to environmental changes in the marine ecosystem.

Health and Disease Assessments

The influence of disease on monk seal population trends is poorly understood. Disease processes may be important determinants of population trends through chronic low levels of mortality or through episodic die-offs. The mass mortality of monk seals that occurred at LAY in 1978 may have been due to a disease process. Similarly, disease may be contributing to the high mortality of juveniles at FFS. In addition, the potential for disease transmission has been an important concern in management activities involving translocation of seals between reproductive sites. Disease may have contributed to the high mortality of seals translocated to MID during 1992-93.

Since 1997, a total of 125 serum samples from monk seals have been tested to evaluate exposure to viral and bacterial pathogens in three wild monk seal subpopulations (64 at FFS, 51 at PHR, and 10 at MID). Screening sera for exposure to numerous potential bacterial and viral pathogens has provided no compelling evidence to suggest that infectious disease(s) significantly influences population growth at these locations.

A companion study involving a comprehensive assessment of the health status of the Hawaiian monk seal was undertaken to assess hematologic and biochemical parameters in this endangered species group and to establish normal baseline values for these parameters within age and gender groups of the species. Information from this study was used to compare the declining population at FFS and the increasing population at PHR. Standard laboratory techniques were used to measure each parameter for comparisons of adults between FFS ($n = 34$) and PHR ($n = 29$). FFS females had higher mean white blood cell counts than PHR females ($p < 0.05$). The mean white blood cell counts were similar among males; however,

significant increases in percent neutrophils and declines in percent lymphocytes and eosinophil were found for FFS males. Albumin, creatinine, and Na/K ratio averages were significantly higher among both females and males on FFS ($p < 0.05$). The implications of these findings are uncertain but suggest that a subclinical disease process may be affecting monk seals on FFS, requiring further study.

Mitigation of Impacts to Enhance Survival

Translocation and Head Start Project

Since 1981, captive care and release programs have been an important part of MMRP's efforts to salvage the reproductive potential lost at locations such as FFS where juvenile mortality is high. These projects have involved weaned female pups with a low probability of survival that were either kept on site for care/protection and released, (Head Start), or those rehabilitated at a captive facility on Oahu, Hawaii and translocated to more favorable reproductive sites. Recent growth in the population at KUR has resulted from the success of these efforts. The rehabilitation and release program reached a hiatus in 1995 when 10 of 12 captive females contracted an eye condition of unknown origin which made them unfit for release into the wild.

Male Aggression

Mortality and injuries associated with male aggression are placed in two categories—multiple male aggression or "mobbing" and single male aggression. In 1994, 22 males were removed from LAY to balance the sex ratio. This successfully reduced the frequency of male-related injuries and deaths to adult females and juveniles of both sexes. In 1991 an aggressive male was euthanized at FFS, and in 1998 two aggressive males were relocated from FFS to Johnston Atoll as part of a successful effort to mitigate the male-caused mortalities of weaned pups. None of the translocated males have returned to their original locations, and the occurrence of injuries and deaths of females and immature monk seals has significantly decreased in all instances. Male aggression is carefully monitored at all sites annually to assess the efficacy of our actions and determine if additional mitigation is required.

Shark Predation

Recent studies have shown that shark predation has become a significant factor contributing to pup mortality at FFS. Pup deaths or disappearances related to shark predation have been either directly observed or inferred from known circumstances of shark predation on pups. Pup mortality or injury from sharks may occur weeks before weaning, unlike mortality

related to male aggression which usually occurs at or near weaning. Annual known and inferred shark mortality of pups < four weeks of age has been increasing since the mid 1990s. In 1999, shark predation accounted for the deaths of 51.1% (23 of 45) of the pups born at Trig Island (FFS) and 9.4% (25 of 244) of all pups born in the NWHI.

In 1998, at least 14 individual Galapagos sharks were tagged and observed hunting pups at Trig Island. At least one-four of the known sharks patrolled there daily and at least eight of the 14 tagged sharks were resighted at least once during the same year (four Galapagos sharks were resighted at least three times). A systematic tag resight study of sharks was not conducted in 1999, but one of the tagged sharks from the 1998 study was associated with the killing of a pup.

During the 2000 field season, a study was initiated to assess the efficacy of a systematic removal of up to 15 sharks observed hunting monk seals at Trig Island and to eliminate or reduce predation on nursing pups in order to enhance early survival rates. This work will be conducted in conjunction with other concurrent studies which will determine the occurrence and number of sharks preying on monk seals and assess shark movement patterns within the atoll.

Removal of Debris From Monk Seals' Haulout Areas

Despite international law prohibiting the intentional discard of plastics from ships at sea, the amount of debris washing ashore and entangling Hawaiian monk seals in the NWHI is high and has shown no sign of diminishing. Most of the debris documented (*i.e.*, nets and lines) was clearly from fishing or other maritime industries. Vessels may be continuing to dump debris despite regulations, or they may be losing gear during operations.

Hawaiian monk seals continue to be victims of marine debris. During the seals' breeding season, MMRP biologists regularly monitor the beaches on which the seals haul out, removing any debris which could entangle the animals as part of an ongoing project. Twenty-five Hawaiian monk seals are known to have become entangled in marine debris during 1999. This is the highest annual total ever documented by MMRP and is greater than both the 17-year (1982-1998) annual average of 10.2 seals and the previous five-year (1994-1998) average of 14.6 seals. Nineteen of these animals were disentangled and released by MMRP field personnel, and 6 escaped unaided. Most (23) of the seals were encountered and released prior to sustaining debris lacerations (seals are also stressed due to the energetic burden caused by the extra weight and drag from the debris). Entangling items comprised lines (eight), nets (six), net/line combinations (three), and other/unknown items (eight) including cones from

hagfish traps and plastic strapping bands. Four entanglements were observed on nearshore reefs, 20 were first observed when seals were on beaches, and one occurred at an unknown location (the seal was observed with an entanglement scar only).

In 1999, 2,774 pieces of potentially entangling debris were removed by MMRP personnel and cooperators from beaches at the six Hawaiian monk seal breeding sites. This is slightly fewer than the 3,136 pieces collected from the same sites in 1998. Marine debris was also removed from coral reefs to reduce the threat of entanglement to monk seals and restore the habitat.

Human Disturbance

Disturbance of monk seals resulting from human activities in the NWHI (*e.g.*, military activities, Coast Guard facilities) likely had a significant effect on monk seal population growth during the mid-1900s. The most conspicuous consequence of disturbance is the premature separation of suckling pups from their mothers, decreasing the pup's chances of survival because of reduced fat reserves obtained from its mother's milk. Early separation of mother/pup pairs also increases the pup's vulnerability to shark predation and male aggression.

Since 1981, MMRP personnel have worked in collaboration with the USFWS, U.S. Navy (USN), and U.S. Coast Guard (USCG) to eliminate disturbance to monk seals on their haul-out sites. Human activity on beaches used by monk seals was significantly reduced after closure of USCG facilities at FFS (1979) and KUR (1992) and the USN facility on MID (1997). Subsequent to these closures, conspicuous increases were reported at all three populations locations.

There is some concern that ecotourism conducted by a contractor to the USFWS on MID could result in deleterious human disturbance to monk seals. However, collaborative attempts between HL and USFWS have apparently been effective in keeping disturbances to a minimum.

MMRP continues to work with other government and nongovernment entities to build a stronger stewardship ethic to enhance the conservation and recovery of endangered Hawaiian monk seals.

Simulation Model to Evaluate Management Strategies

One objective of the Hawaiian Monk Seal Population Assessment Program is to improve the information available to guide management decisions. For example, management interventions in the monk seal population have involved rehabilitating and translocating female pups, removing adult males to reduce

mortality from both single and multiple (mobbing) male aggression and, currently, mitigating Galapagos shark predation. The short- and long-term implications of such activities are usually not immediately apparent. Recognizing that a tool is needed to aid in decision making, HL has undertaken the development of a stochastic simulation model to realistically represent salient aspects of monk seal biology and allow managers to explore the likely outcomes of alternative management scenarios over various time horizons.

The monk seal simulation model requires a large number of parameters and initialization data, which are derived primarily from the annual population assessment research efforts. Information incorporated into the model include age/sex composition, survival and migration rates for each of the six subpopulations, and birth rates derived from two sites. The monk seal simulation model predicts future abundance and population structure for a monk seal meta-population consisting of six subpopulations. The model is spatially implicit with distinct demographic parameters for each subpopulation.

Routines in the model allow for the exploration of various management strategies given alternative scenarios. Translocation of female pups between sites and the effects of mortality from shark predation and both single and multiple male aggression can be assessed. Also, the likely outcome of mitigation of these sources of mortality can be explored. Though the model is user friendly for nonprogrammers, it is also complex and highly flexible. All demographic parameters can be altered, migration rates and density dependence allowed or not, and all probabilities relating to male aggression and shark predation can be set by the user. The monk seal simulation model is already a powerful tool for management decision making, and further improvements are ongoing.



Cook Inlet Beluga Whale

Of the five stocks of beluga whales in waters under U.S. jurisdiction in Alaska, the Cook Inlet (CI) stock is the most discrete. It is a relatively small, isolated stock that inhabits mostly Northern CI in the summer, occurring in Central or Southern parts of CI in winter. Occasionally, a few belugas (thought to be ranging from CI) are seen elsewhere in coastal areas of the GOA.

In the early 1990s, NOAA Fisheries was concerned that the Native harvest of beluga in CI might be higher than the stock could sustain. Accordingly in 1993, NOAA Fisheries began annual aerial surveys of CI to document the distribution and abundance of belugas and to evaluate the trend in abundance. Concurrently, NOAA Fisheries contracted with the CI Marine Mammal Commission (CIMMC), a consortium of Native hunters, to monitor and report on the number of beluga harvested from CI. Results of this research and monitoring efforts prompted NOAA Fisheries to convene a formal status review of the stock. In particular, the documented decline in abundance from 653 whales in 1994 to 347 in 1998, a reduction of nearly 50%, was a concern for the management of this stock.

Status Review

On November 19, 1998, NOAA Fisheries conducted a workshop that initiated a formal status review of the CI beluga stock (FR 64228). In the status review, NOAA Fisheries evaluated the present status of the stock through reports on population ecology, habitats, and abundance estimates. The review provided a background for decisions to be made on whether the stock could be considered depleted under the MMPA and/or threatened or endangered under the ESA.

This workshop coincided with similar workshops held by the Alaska Beluga Whale Committee (November 16-17, 1998) and the Alaska Scientific Review Group (ASRG) (November 18-20, 1998). The ASRG is a body established under the MMPA to provide scientific advice regarding marine mammals to NOAA Fisheries and the USFWS. (See Chapter 1- Stock Assessments- for more information on SRGs.)

Following the workshop conducted by NOAA Fisheries, a comment period was provided from November 19, 1998 through January 19, 1999. To ensure the status was comprehensive and based on the best available science, the comment period was followed by a NOAA Fisheries sponsored workshop on March 8-9, 1999, in Anchorage, Alaska. At this workshop, additional public comments and recommendations were received. Abstracts from presentations at these workshops were included in a NOAA Fisheries report (AFSC Processed Report 99-06) and were used in decisions to consider this stock as depleted as defined in the MMPA but not endangered or threatened under the ESA.

Depletion Finding

On January 21, 1999, NOAA Fisheries received a petition from the State of Alaska to designate the CI stock of belugas as depleted under the MMPA. Following the status reviews and taking into account the best available scientific information, on October 19, 1999, NOAA Fisheries proposed designating the CI belugas as depleted (64 FR 56298) and followed this with a public hearing on November 22, 1999 on the proposed designation. NOAA Fisheries issued a Final Rule on May 31, 2000 (65 FR 34590), designating the stock of belugas whales in CI as depleted under the MMPA based on the determination that the stock was below its Optimum Sustainable Population (OSP) level.

Endangered Species Act Determination

After NOAA Fisheries had initiated the status review on CI beluga whales and prior to a final determination on the status of the stock, NOAA Fisheries received two petitions to list the stock as threatened or endangered under the ESA (both petitions were received in March 1999). On June 22, 2000 (65 FR 38778), NOAA Fisheries made its determination that listing the CI stock of beluga whales as threatened or endangered under the ESA was not warranted. The following is the discussion of the best available scientific information from that determination.

The ESA instructs the Federal government to conduct a review of the species status and include efforts by any state or foreign nation to protect such species with any area under its jurisdiction or the high seas. As noted above, NOAA Fisheries conducted this status review.

In 1993, NOAA Fisheries started annual surveys of belugas in CI. The results showed a sharp decline in estimated abundance, with the 1998 estimate (347 animals) nearly 50% lower than the 1994 estimate (653 animals).

The reported subsistence harvest of CI beluga whales from 1995 through 1998 averaged 77 whales per year. There was no harvest in 1999. NOAA Fisheries worked with CIMMC to authorize a harvest of at least two belugas per year (see "Limiting Subsistence Harvest"). The harvest, which has been identified as the only factor that can account for the observed decline of the CI beluga stock, is being controlled through Pub. L. 106-31 and will be controlled through regulatory mechanisms that are available under the MMPA.

In simulation modeling efforts, NOAA Fisheries scientists have demonstrated that the stock is not likely to continue to decline if the harvest is controlled. Breiwick and DeMaster (1999) showed that a stock with at least 300 individuals and a positive intrinsic growth rate, like that of beluga whales, would not go extinct due to stochastic events.

Using a logistic model with productivity values taken from the current CI beluga Stock Assessment Report and an assumed carrying capacity of 1,300 whales, NOAA Fisheries compared the rates of population growth using no harvest and a harvest of two whales per year. The no-harvest model indicated that the stock would be expected to double in about two decades. The latter model predicted that the harvest of two whales per year would have a negligible impact on the stock (*i.e.*, such a harvest regime would not cause a significant delay in recovery compared to the no-harvest model).

Within reasonable probabilities, the habitat of the stock has not been, nor is it likely to be, destroyed, modified or curtailed in sufficient extent to cause the stock to be in danger of extinction. The stock has not been overutilized for commercial, recreational, scientific or educational purposes. The effects of disease or predation are not well documented but are believed to be minimal. The subsistence harvest is the only factor that can account for the observed decline. In addition, the MMPA provides an adequate mechanism to ensure that future commercial activity in CI would have no more than a negligible impact on the stock. Other natural or manmade factors (subsistence harvest) have affected the stock's continued existence; however, the current (since 1999) level of harvest would not have a significant adverse impact on the continued existence of CI beluga whales.

Just prior to NOAA Fisheries' determination that listing the stock under the ESA was not warranted, Trustees for Alaska, on behalf of several conservation organizations and an Alaska Native, filed suit against NOAA Fisheries for failure to meet the required one-year deadline in the ESA to make a determination on the petitions to list the



NOAA Fisheries scientists satellite tag a wild beluga whale in order to monitor its movements and health.

stock as threatened or endangered. Following NOAA Fisheries' notice of determination that listing the stock was not warranted, Trustees amended its suit challenging the determination. The suit claimed that NOAA Fisheries had acted in an arbitrary and capricious manner in making the determination.

Limiting Subsistence Harvest

Section 101(b) of the MMPA provides an exemption to Alaska Natives to take marine mammals for subsistence purposes or for purposes of creating and selling authentic Native articles of handicraft and clothing. This exemption may be limited by Federal regulations if the affected stock of marine mammals is designated as depleted and NOAA Fisheries (or USFWS) follows notice and hearing requirements under MMPA section 103. After regulations are promulgated, they must be removed as soon as the need for their imposition has disappeared.

All parties that have been involved in CI beluga conservation agree that the stock cannot continue to support the level of harvest (estimated at over 70 whales per year) that occurred prior to 1999. NOAA Fisheries and Alaska Native organizations have pursued co-management agreements pursuant to section 119 of the MMPA as one mechanism to reduce the harvest. As NOAA Fisheries and Alaska Natives negotiated section 119 agreements, it became apparent that enforceable regulations would also be required. However, the process to limit subsistence harvest is long and complicated, and the affected parties recognized that immediate action was required to ensure that over-harvest did not continue.

Congress aided the conservation effort in April 1999 by providing a temporary requirement that the harvest of CI beluga whales be conducted only under an agreement pursuant to section 119 of the MMPA. That legislation provided protection for the stock only until October 1, 2000, when it was anticipated that a final rule to regulate the harvest would be completed. When it became apparent that harvest regulations would not be final until after spring 2001, Congress amended the April 1999 requirement for a co-management agreement by removing the expiration date; thus, the requirement for an agreement between NOAA Fisheries and Alaska Native organizations to authorize the harvest was made permanent.

NOAA Fisheries issued a Proposed Rule on October 4, 2000 (65 FR 59164), to regulate subsistence harvest of CI beluga whales by Alaska Natives provided that:

- 1) Subsistence harvest can only occur under an agreement between NOAA Fisheries and an Alaska Native organization pursuant to section 119 of the MMPA
- 2) Subsistence harvest shall be limited to no more than two strikes annually until the stock is no longer considered depleted under the MMPA
- 3) Sale of CI beluga whale products is prohibited
- 4) All hunting for subsistence purposes shall occur after July 15 each year and
- 5) Harvest of newborn calves, or adult whales with maternally dependent calves is prohibited.

Issues Addressed at the Hearing

Interested persons or parties were given an opportunity to file a notice of intent to participate in the hearing that will be conducted in accordance with section 103(d) of the MMPA. Interested persons or parties also filed direct testimony and documentary exhibits. Parties who submitted notice of intent to participate in the hearing were advised to submit rebuttal testimony by November 28, 2000. Pursuant to the procedural regulations governing the formal rulemaking hearing (reinstated on June 27, 2000, 65 FR 39560), Judge Parlen McKenna identified the participants and the final agenda as:

A. Population Estimates

- 1) What numbers are appropriate to use for:
 - a. Carrying capacity (K)
 - b. Current population size (N)
 - c. Intrinsic rate of growth (R_{max})
 - d. Lower bound of the optimum sustainable population level (Maximum Net Productivity Level) relative to the carrying capacity
- 2) Whether 2000 survey data will be available. If so, why aren't they being used?
- 3) Whether the recovery times projected by NOAA Fisheries under different harvest regimes are appropriate?
 - a. Whether recovery factor used by the NOAA Fisheries is too conservative? If so, what is the appropriate recovery factor?
 - b. Whether there is a consistent formula for estimating the recovery time?
 - c. Have past formulas for population parameters been developed? If so, what are the formulas and why were they not adopted?
- 4) What factors, other than Native harvest of CI beluga whales, possibly contributed to the observed declines or slower than projected potential recovery of the stock?
 - a. Whether the estimate of annual removals by Alaska Native subsistence hunters in CI is accurate? Is the CI Marine Mammal Council's report on 1998 harvest levels available?
 - b. Whether NOAA Fisheries has adequately accounted for risks to the population from orca predation, strandings, oil spills, and other stochastic events in calculating potential harvest removals and recovery times?

- c. Is there an Inlet-based decline in the availability of food or prey for the beluga? If so, in what way has this affected the decline and potential recovery of the population?
- 5) Whether a more flexible model that accounts for uncertainty in key population parameters is available? If so, why wasn't it used?
- 6) What resources are available for monitoring beluga population and harvest?
 - a. Will the beluga population be evaluated on an annual basis?
 - b. Whether the regulations should contain a provision for altering the number of Native harvest strikes if new, valid information changes the analysis of CI beluga population?
- 7) Should a more flexible harvest regime be adopted? If so, what should it be?

B. Co-Management and Enforcement

- 1) What is the definition of the term "Alaska Native Organization (ANO)"?
 - a. How is an ANO recognized?
 - b. Are there any ANOs in CI with area-wide tribal authority to enforce laws against all members of the area tribes and enter into agreements on behalf of said tribes? How many exist and who are they? Which ANO(s) can enter into co-management agreement with NOAA Fisheries?
- 2) What mechanisms are available to enforce the Native harvest limitation and prohibition on the sale of products and foodstuff from CI beluga whales?
 - a. Who has authority to enforce the proposed regulations, if adopted? Will enforcement authority be shared between NOAA Fisheries and the ANO(s)?
 - b. What effect, if any, does the recent ruling in Alaska v. Native Village of Venetie Tribal Government, 522 U.S. 520 (1998) have on a tribal government's ability to enforce tribal laws on individuals?
 - c. How will the strikes under the proposed regulation be allocated? Who will monitor the harvest of CI beluga whales to ensure that the season is concluded as soon as the second strike has been made? How will the hunters and tribes be notified of season's closure?
- 3) Are there methods to increase efficiency?
- 4) Will there be sufficient funding for enforcement and prosecution?

C. Method and Means of Hunting

- 1) Will illegal takings be counted against the two-strike Native harvest limit?
- 2) Will NOAA Fisheries be able to stop Native harvest of CI beluga whales under emergency circumstances by rule making? Will there be a

legal mechanism to stop Native harvest of CI beluga whales in the event of unrelated mortality affecting the population recovery?

- 3) Should juvenile whales be taken instead of mature adults if it is shown to enhance chances of population recovery?
- 4) Should the proposed July 15 annual commencement date for Native harvest of beluga whales be moved forward to July 1 in view of deteriorating weather conditions?

D. Sale of CI Beluga Products

- 1) Whether the term "sale" should include barter and other types of quasi-commercial transactions?
- 2) Should attempts to sell CI beluga whale products and/or foodstuff be deemed a violation? Should the purchase and attempts to purchase CI beluga whale products or foodstuff be deemed a violation?
- 3) For enforcement purposes, should the restriction on the sale of CI beluga whale products and/or foodstuff be expanded to prohibit the sale of products and/or foodstuff from other beluga whale stock?
- 4) Should restrictions be in place for all CI beluga whale products or just edible portions?

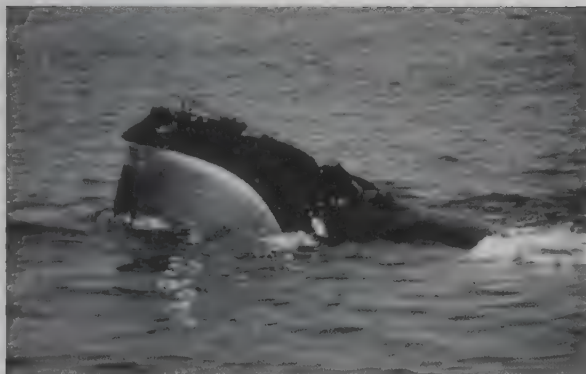
E. Cultural Interests

- 1) Are there ways to encourage full utilization of belugas taken pursuant to the proposed regulations?
- 2) Is there sufficient emphasis on the importance of Native subsistence harvest in terms of balancing in favor of permitting the proposed harvest?

The hearing began on December 5, 2000, at the Federal Court in Anchorage, Alaska. After the hearing, the parties continued to discuss various alternatives for harvest regulations to reach a consensus on a Final Rule.

Co-management Agreement to Authorize Harvest

The special legislative provision that required a co-management agreement to authorize a harvest of CI beluga whales continued through 2000 to provide protection to the stock. In 1999, no co-management agreement was completed, and no CI beluga whales were killed for subsistence purposes. In 2000, NOAA Fisheries and the CI Marine Mammal Council negotiated an agreement that would have allowed the Native Village of Tyonek to take a single whale to continue the harvest tradition in that village. The village, however, was not able to conduct a hunt in 2000. Therefore, there were no harvest of CI beluga whales in 1999 or 2000 for subsistence purposes.



Northern right whale: Center for Coastal Studies

Northern Right Whale

The Northern right whale (*Eubalaena glacialis* and *Eubalaena japonica*) occurs in both the North Atlantic and North Pacific oceans and is the world's most endangered large cetacean. Right whales were prized by the whaling industry for the quality and quantity of their oil. Slow swimming speeds and coastal distributions made right whales easy prey and they were exploited as early as the 11th century and the target of extensive commercial hunting in the 1700 and 1800s. However, by the late 1800s commercial harvest of Northern right whales in both oceans was no longer economically viable. Despite a ban on commercial harvest of right whales by the International Whaling Commission in 1949, and subsequent U.S. adoption of this ban, Northern right whale populations have remained at precariously low levels. The right whales, and all large whale species, were listed as endangered under the ESA in 1970.

Four populations probably exist, or once existed: two each in the North Atlantic and North Pacific oceans. Recent genetic analysis strongly suggests divergence of the North Atlantic right whale from the North Pacific right whale. The authors of the analysis recommend a separate species designation for the North Atlantic right whale: *Eubalaena glacialis*; and the North Pacific right whale: *Eubalaena japonica*.

The North Pacific stocks are little understood. Based on available sighting data, the Eastern North Pacific population of right whales may number only a few tens of animals, while the Western North Pacific population may be somewhat larger with probable numbers in the low hundreds. Sightings of the Eastern North Pacific population over the past several decades have been rare, but a small number of whales have been seen in the South-Central Bering Sea each July since 1996. (Goddard and Rugh, 1998) An increased search effort in recent years has resulted in new information on occurrence and distribution. Based on information from these surveys, NOAA Fisheries received a petition dated October 4, 2000 (received on October 13) requesting that NOAA Fisheries raise the critical habitat

designation of the Northern right whale under the ESA, specifically by designating an area within the Eastern Bering Sea as critical habitat for Northern right whales in the North Pacific. The petition was in review at the end of 2000.

As it did in 1998, NOAA Fisheries provided support in 1999 and 2000 for aircraft and ship-based surveys to help assess abundance, distribution, and stock identity of the eastern North Pacific population. Support of this work is expected to continue in 2001.

The focus of greatest conservation efforts is on the Western North Atlantic population where there are about 300 individuals. In the Western North Atlantic, right whales occur seasonally in at least three areas along the East Coast of the U.S. and two areas in Canada. The principal and only known calving area for the population is along the coast of Northern Florida and Georgia. This area is used almost exclusively from December to March by females with newborn calves and some juveniles. The other four known seasonal habitats are feeding areas off New England and Southeastern Canada. In spring, right whales regularly occur in Cape Cod Bay and the Great South Channel off Massachusetts. Recognizing the importance of these areas to the survival of this population, in 1994, NOAA Fisheries designated these three areas as critical habitat.

Although no commercial hunting of right whales is known to have occurred in the western North Atlantic since at least the 1930s, other human activities are likely slowing recovery. Both collisions with ships and entanglement in fishing gear are documented causes of death and serious injury in the population. From 1970 to December 2000, there have been 48 known right whale deaths. Of these, 16 were from ship strikes, and three from fishing gear entanglement. The cause(s) of the remainder of the deaths is unknown, and a number of deaths were neonates (newborns).

Numerous non-fatal fishing gear entanglements have occurred in the last two decades. Since 1987 there have been a total of 84 known large whale (fin, humpback, minke, and right whales) entanglements. Of these 20 were right whales; 38 were humpback whales; nine fin whales; 12 minke whales; and five unidentified large whales. Between 1997 and 2000, an average of six known right whale entanglements have occurred per year. Of the entanglements that occurred since 1987, 14 were fatal (1 right whale, 3 humpback whales, 3 fin whales, 6 minke whales, and 1 unidentified whale).

Unfortunately, 1999 was not a good year for right whale deaths related to human activities. One right whale died as a result of fishing gear entanglement, and one died from a ship strike. A mature female right whale, 45 feet in length, was first observed severely entangled in May 1999 off the coast of Massachusetts. The whale was not seen again until early September, still severely

entangled. At that time, substantial efforts were made to free her of the gear, and some of the gear was removed but one line remained embedded in a large wound on the whale's back. The whale was found dead five miles off Cape May, New Jersey on October 20, 1999. Injuries from the gear were fatal.

A second right whale died in 1999, the victim of a ship strike. The whale, an adult female, was first spotted in April 1999 off Wellfleet, Massachusetts in Cape Cod Bay. The carcass was towed ashore and subsequent analysis revealed the whale was a victim of a ship strike, including blunt trauma and a broken jaw. There were no known fatalities linked to human activities in 2000.

Given the threats posed by human activities and the slow recovery of this population, NOAA Fisheries has undertaken a number of actions to reduce adverse effects from human activities and to facilitate recovery.

Recovery Plan Development and Revision

In 1991, NOAA Fisheries published the Recovery Plan for the Northern Right Whale. The Recovery Plan identified known and potential factors affecting the Northern right whale in both the Atlantic and Pacific oceans, and provided research and conservation recommendations for reducing or eliminating adverse effects to the species. NOAA Fisheries is updating the plan and expects to issue a draft plan for public comment in 2001. Revised recovery actions will focus on attempts to reduce adverse effects from human activities, specifically, ship strikes and entanglement, as well as identifying research and coordination efforts needed to facilitate recovery of the population.

Revisions to Potential Biological Removal Rate and the List of Fisheries

As noted in Chapter 1, the 1994 amendments to the MMPA require NOAA Fisheries to prepare Stock Assessment Reports that describe the status of each marine mammal stock that occurs in U.S. waters. These reports include an estimate of a potential biological removal (PBR) level for stocks affected by fisheries. PBR is "the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimal sustainable population." NOAA Fisheries prepares the reports annually, and the 1996-1999 reports the PBR for right whales was 0.4, or an average of 4 whales killed in 10 years. However, a significant change was made in 2000. NOAA Fisheries revised the PBR from 0.4 for years prior to 2000 to zero whales beginning in 2000. This change is important because it essentially requires that no (zero) Western North Atlantic right whales be killed.

On a related matter, under the MMPA, NOAA Fisheries is required to develop a List of Fisheries (LOF) that classifies all U.S. commercial fisheries into one of three categories based on the level of marine mammal deaths and serious injuries that occur incidental to the fishery. A notable change made to the 1997 LOF was combining the New England inshore and offshore lobster pot fisheries into one fishery, and a change in its classification from a Category III (remote likelihood of serious injury or mortality) to a Category I (frequent serious injury or mortality) status. The re-classification resulted from entanglement records indicating that 0.2 right whales per year are seriously injured or killed incidental to the Atlantic lobster pot fishery, and carries with it ramifications of potential additional regulation, e.g., additional observer coverage and the requirements to form a Take Reduction Team if total human-related mortality exceeds PBR. Because of the status of the right whale population, this level of impact is considered significant. This classification was continued by NOAA Fisheries in 1998, 1999, and 2000 and is expected to continue in 2001.

Efforts to Reduce Serious Injury from Fishing Gear Entanglements

Atlantic Large Whale Take Reduction Team and Plan

In August 1996, NOAA Fisheries formed the Atlantic Large Whale Take Reduction Team (ALWTRT) to address the incidental take of humpback (*Megaptera novaeangliae*), fin (*Balaenoptera physalus*), minke (*Balaenoptera acutorostrata*), and Northern right whales in the Gulf of Maine/U.S. mid-Atlantic lobster trap/pot fishery, the mid-Atlantic coastal gillnet fishery, the Southeastern U.S. Atlantic shark gillnet fishery, and the Gulf of Maine sink-gillnet fishery.

As indicated in previous annual reports, the ALWTRT developed and submitted to NOAA Fisheries a non-consensus take reduction plan in 1997. Based on the plan, NOAA Fisheries issued a proposed rule in April 1997 and an interim final rule in July 1997 (62 FR 39157). The provisions implemented were: (1) formation of a fishing gear advisory group; (2) research on potential fishing gear modification to determine ways to reduce entanglement and facilitate the release of entangled whales; (3) fishermen outreach and education program; (4) expansion of the disentangling network; (5) hiring a large whale coordinator in Maine (a state in which much of the gear restrictions were opposed); (6) continuation and refinement of the northeast U.S. aircraft survey program; and (7) implementing some time/area closures and fishing gear restrictions.

Each year since 1997, the ALWTRT has met at least once annually to further refine the plan for reducing or eliminating entanglement of large whales. In February 1999 the ALWTRT met in Danvers, Massachusetts to assess and, if needed modify, the existing plan. NOAA Fisheries representatives provided information indicating that the entanglement of large whales had continued since implementation of the plan in 1997 and advised the ALWTRT that it was necessary to enhance whale protection by modifying the plan. The ALWTRT discussed a number of options and developed a consensus Plan involving time/area closures for the lobster gear and anchored gillnets; and required changes in fishing gear or operations, which included a general prohibition on the use of surface floating line in any of these fisheries, a prohibition on storing inactive gear at sea, and restrictions on setting shark gillnets off the coasts of Georgia and Florida and drift gillnets in the mid-Atlantic. On February 16, 1999, NOAA Fisheries issued a Final Rule (64 FR 7529) that implemented those recommendations. The plan implemented by NOAA Fisheries also included a number of non-regulatory measures, including an accelerated program of research on possible gear modifications to reduce entanglement; public outreach; developing a network to inform fishermen when right whales were in a particular area; and enhancing efforts to disentangle whales.

However, concerns were raised about the inadequacy of the gear marking requirements (*i.e.*, the system had flaws that would not allow the reliable tracing of gear to a particular fishery or region). As a result, NOAA Fisheries published a rule on April 9, 1999 (64 FR 17292) removing the gear marking regulations until November 1, 1999, or until a better system was designed. On December 30, 1999 NOAA Fisheries extended the suspension until November 1, 2000 because a better system had not been designed. On November 22, 2000 a final rule was published removing gear marking until a new gear marking program could be implemented.

In July and August 1999, observers and mid-Atlantic subgroups (respectively) met and decided on additional measures specific to these areas. The Southeast subgroup agreed to allow the Vessel Monitoring System (VMS) as an alternative to the existing 100% observer coverage requirement and to prohibit night time straight sets of non-shark gillnet fisheries. The mid-Atlantic subgroup agreed on a number of gillnet and pot gear modifications largely consistent with previous team recommendations for Northeast fisheries. The Northeast subgroup met in Danvers, Massachusetts in April and May 2000. Additional fishing gear modifications were discussed as was the possibility of rapid response fishing closures linked to right whale occurrence and density. Based on these discussions, NOAA Fisheries issued an interim final rule on December 21, 2000 (65 FR 80368) setting forth a new set of requirements to reduce the likelihood of serious

entanglement. With regard to lobster gear, the rule required that: (1) buoy lines be as knot-free as possible and the use of splices was encouraged in lieu of knots; (2) multiple trap trawls only permitted (*i.e.*, single trap trawls prohibited); (3) gear clearly marked midway on the buoy line; and (4) knotless weak links with a breaking strength of 600 lbs required in some onshore areas and knotless weak links at the buoy with a breaking strength of 3750 lbs or less in certain offshore areas. With regard to gillnet gear the rule required: (1) knotless weak links at the buoy with a breaking strength no greater than 1,100 lbs; (2) weak links in the headrope at the center of each panel; (3) net strings containing 20 net panels or less must be anchored with one of three optional anchoring systems; and (4) gear marking midway on the buoy line.

Another ALWTRT meeting is planned for June 2001 to discuss possible further gear modifications, implementation of rapid response closures, and more permanent seasonal closures.



Whale entangled in fishing gear.
Source: NOAA Fisheries

Disentanglement Response Program

Although a number of measures are in place or being developed to reduce or eliminate this threat, entanglement still occurs. As noted above, a number of right whales are entangled in fishing gear each year. Therefore, all reasonable efforts are made to locate and free each entangled whale. Disentangling a whale can be dangerous, so it is best undertaken by trained and experienced personnel using pre-determined procedures to ensure human safety, the health and safety of the animal, and proper collection of related data. In support and cooperation with a number of organizations, NOAA Fisheries established a disentanglement program that involves: (1) a multi-agency and institution network to locate and monitor entangled whales; (2) establishing equipment caches in certain locations to facilitate rapid regional response; (3) training of fishermen and disentanglement personnel to assist in disentanglement efforts; and (4) providing updated status reports of recently disentangled and currently entangled whales.

The disentanglement program is administered by the Center for Coastal Studies (CCS) through funding and authorization by NOAA Fisheries and with vital support from a variety of other organizations. The program consists of one primary CCS-lead team and field station support in the Northern Gulf of Maine/Bay of Fundy, Central Maine, Southern Gulf of Maine, Cape Hatteras, North Carolina and Georgia/Florida. Participating organizations include NOAA Fisheries, the Canadian Whale Emergency Network, Canadian Coast Guard, Massachusetts Department of Fisheries, the New England Aquarium, the International Fund for Animal Welfare, the Maine Volunteer Fishermens Network, Maine Marine Patrol, Virginia Marine Science Museum, Georgia Department of Natural Resources, Duke University Marine Laboratory, and others. The U.S. Coast Guard (USCG) serves a central role in disentanglement efforts and has provided logistical (e.g., transporting personnel), communication, and safety components to virtually every disentanglement event on the Atlantic coast.

In 1999 and 2000, important strides were made in developing and implementing a systematic program to train fishermen in reporting entanglements and assisting in disentanglement efforts. Volunteer Maine fishermen were the first to receive training in a pilot program primarily in 1998 and 1999. Subsequently, CCS has provided training and outreach presentations for fishermen, mariners and biologists in 1999 and 2000 in numerous locations along the U.S. East coast. Also, preparedness for disentanglement efforts was greatly enhanced by establishing strategic placement of "first responder kits" and "full caches" of equipment from Canada to Florida. In this same period, the ability to track and monitor entangled whales was improved by starting the practice of attaching a satellite telemetry device to the gear, thereby enhancing the opportunity to locate the animal and make further attempts at disentanglement. In addition, NOAA Fisheries established a program to assess any gear removed from the whale to determine gear type and characteristics to help improve fisheries management efforts.

Further information about this program, including regular updates of currently entangled whales can be found at the CCS website:

<http://www.coastalstudies.org/rescue/index.htm>.

Steps Taken to Reduce the Level of Ship Strike Deaths

In the last several years, NOAA Fisheries has devoted considerable effort to educating the shipping industry and others about the vulnerability of right whales to ship strikes in an effort to reduce the probability of ship strikes. As noted earlier, impacts from human activities are likely slowing the recovery of this population, and death and injury from collisions with ships are likely a contributing factor.

Aircraft and Vessel Based Surveys for Western North Atlantic Right Whales

To help reduce the likelihood of ship strikes, a multi-agency team designed and conducted aircraft surveys that transect key Northern right whale feeding and calving areas when the animals are expected to be present. Systematic surveys have been used in right whale habitat over waters off the Southeast U.S. since 1993, and since early 1997 in the Northeast U.S. The primary objectives of these surveys are to: (1) locate right whales and to provide the sighting information to mariners in the area, and (2) photograph right whales with high-resolution cameras for the purpose of photo-identification and evidence of interaction with fishing gear or ships.

Due to concern over potential collisions between right whales and hopper dredges operating in designated critical habitat for right whales in Southeast waters, monitoring requirements were placed on the Army Corps of Engineers (Corps) and resulted, in the 1980s, in the first regular aerial survey flights for right whales in waters off the Southeast U.S. These surveys evolved over the years and, by late 1993/early 1994, were officially sponsored by NOAA Fisheries, the USCG, USN, and the Corps, and became known as the Early Warning System (EWS). The surveys were designed as daily reconnaissance flights to detect the presence of whales in and around a number of busy Southeast shipping ports, USN vessel and submarine bases, and the Corps dredging sites, in order to alert vessels of the whales' presence and prevent potential whale/vessel collisions. The EWS, with the assistance of the USN and USCG, has evolved a sophisticated communication network which alerts not only dredges and military vessels in the area, but provides broadcasts to mariners via NAVTEX, NOAA Weather Radio, and other means, and even contacts vessels directly via radio when urgently necessary to prevent imminent collision.

Using the SEUS aircraft survey program as a model, efforts were initiated in 1997 to develop a similar program in the Cape Cod Bay and the Great South Channel in late winter and early spring. The program is a cooperative effort by NOAA Fisheries, the USCG, Massachusetts Division of Fisheries, the Massachusetts Environmental Trust, the Center for Coastal Studies, the USN and the Boston port authority (MASSPORT). As a result of recommendations by the Recovery Plan Implementation Team, a similar EWS, known as the "Sighting Advisory System," was established in the Northeast in late 1996. Through a fax-on-demand system, mariners and fishermen can obtain sighting reports and, in some cases, can make necessary adjustments in shipping or fishing operations to decrease the potential for interactions. The Commonwealth of Massachusetts was a key collaborator

in the 1996-1997 effort and expanded the effort during the 1997-1998 season. The USCG has played a key role in this effort, providing both air and sea support. The State of Maine and the Canada Department of Fisheries and Oceans have expressed interest in conducting this type of EWS along their coastal waters. It is expected that other potential sources of sightings such as the USN may contribute to this effort. The NOAA Fisheries Maine ALWTRP Coordinator is also working with local aquaria to collect whale sightings from fishing vessels in the Gulf of Maine.

In the Northeast U.S., the primary source of information for the sighting network is dedicated aerial surveys conducted by NOAA Fisheries and the state of Massachusetts in the two critical habitat areas and beyond. Surveys are done each year from January to the end of June. Additional sighting information sources which contribute throughout the calendar year are primarily opportunistic and include USCG aircraft and ships, ship-based sightings by several research organizations during their studies of right whales (Center for Coastal Studies, Woods Hole Oceanographic Institution, International Wildlife Coalition), research vessels operated by NOAA Fisheries, the Northeast Region Stranding Network, whale watch vessels, and a high speed ferry. Sighting locations are processed, disseminated, and faxed by the NOAA Fisheries Northeast Regional Office to a wide distribution network that includes federal and state agencies, shipping agents and pilots, and right whale researchers. Right whale locations are broadcast to ships and other maritime users for a 24-hour period via USCG Broadcast Notice to Mariners, NAVTEX, alerts on NOAA Weather Radio, and Army Corps of Engineers Traffic Controllers at Cape Cod Canal. Maps with right whale sightings are updated and posted on the Wheelock College WHALENET web site at: whale.wheelock.edu/whalenet-stuff/reportsRW_NE/. Sighting information can also be found at the NOAA Fisheries Northeast Region, Northeast Fisheries Science Center and the Massachusetts Executive Office of Environmental Affairs web sites. A NOAA Fisheries Inquiry Line (telephone) also provides right whale sighting information and sends facsimiles of the sighting maps to interested callers.

The aircraft survey program is a cooperative effort by NOAA Fisheries, NOAA's Weather Service, USCG, USN, the Corps, the Commonwealth of Massachusetts, the states of Georgia and Florida, Wheelock College, Massachusetts Environmental Trust, CCS, the New England Aquarium, NOAA's Stellwagen Bank National Marine Sanctuary, Massachusetts Port Authority, and Naval Undersea Warfare Center Division, Newport, Rhode Island.

In addition, NOAA Fisheries provided support in 1999 and 2000 for aircraft surveys in the Southeast U.S. offshore of those typically being conducted over critical habitat by the states of Georgia and Florida, as

well as the first systematic surveys flown over waters off the mid-Atlantic states.

Vessel based surveys to locate and photograph right whales were also conducted in 1999 and 2000 and are expected to continue in 2001. These include surveys to help assess right whale distribution and relative abundance, to gather photo-identification data, and to provide sighting information to the mariner warning system. NOAA Fisheries supported extensive vessel surveys throughout right whale habitat in the last two years, and NOAA vessels have supported numerous right whale related studies.

Developing a Mandatory Ship Reporting System

In late 1997 and early 1998, NOAA, NOAA Fisheries, National Ocean Service, USCG, Marine Mammal Commission (MMC), and the International Fund for Animal Welfare began jointly developing a proposal for submission to the International Maritime Organization (IMO) requesting implementation of a mandatory ship reporting system in right whale habitats.

The proposal received endorsement from the USCG, the MMC, and other agencies and organizations. It was presented by the USCG, on behalf of the U.S., to the IMO's Subcommittee on Safety of Navigation in July 1998 in London, and subsequently transmitted to the overseeing Committee on Marine Safety. Following the Committee's review, the proposal received IMO approval in December 1998. In early 1999, NOAA Fisheries worked with USCG personnel and a contractor to design the satellite-linked communication system and to help develop implementing regulations. The system began operation in July 1999. NOAA Fisheries and the USCG share the cost of operating the system, and there is no cost to the mariner, and, other than reporting, the system makes no other requirements of the mariner.

Under the system, all ships greater than 300 tons entering essential right whale habitat are obligated to report location, speed, and destination to a shore-based station. In return, all reporting ships receive a message describing the status, distribution, and behavior of right whales, as well as sighting locations. The return message also indicates that mariners should not assume that whales will avoid oncoming vessels and that lookouts be alert for right whales, that mariners should listen for broadcasts reporting recent right whale sighting locations, and advise that reduced speeds be used when near whales or traveling in critical habitats or during conditions of poor visibility. A portion of the system, which encompasses the right whale critical habitats in Cape Cod Bay and the Great South Channel, operates year round. A second portion includes right whale critical habitat off the Southeast U.S. and operates from 15 November to 15 April.

In 2000, NOAA Fisheries and contractor, the Florida Marine Research Institute, began analysis of incoming messages from ships (e.g., ship destination, speed, and point of entry into the system) to assess ship volume, patterns, and speed in critical habitat. A report of this analysis is expected to be completed in 2001 and will likely help facilitate development of further ship management options to reduce ship strikes.

Thus, the system serves to provide warnings to mariners entering areas of right whale occurrence about the presence of whale, raises the awareness of the industry about the vulnerability of right whales to ship strikes and provides data for further assessment and development of options to reduce ship strikes. Design and operation of the system has been a multi-organization effort, involving government and non-government organizations.

Updating Nautical Charts and Other Navigational Publications, and the International Safety Management Code

To help ensure safe navigation in coastal waters of the U.S., NOAA's National Ocean Service (NOS) periodically publishes and updates nautical charts. NOS also issues a series of regional books called *Coast Pilots* which are basic references on navigation hazards and rules, and regional environmental conditions. In U.S. waters, all ship's captains are required to carry the *Coast Pilots*. NOAA Fisheries, NOS, and others have worked closely to update information printed on nautical charts and in *Coast Pilots* regarding right whale critical habitat and regulations about approaching right whales and other protected marine species. *Coast Pilots* covering waters off the entire Eastern U.S. have been or will be updated to include information on the status of right whales, the threats posed to whales by ships, and measures mariners might take to avoid hitting right whales. Nautical charts are being updated on a schedule set forth by NOS.

In 1998, NOAA Fisheries contacted the National Imagery and Mapping Agency's (NIMA) (formerly the Defense Mapping Agency) to request that its maritime publications be revised to include information on right whales and other endangered marine species. NIMA obliged and its publication, *Notice to Mariners*, now includes information on right whales and marine turtles. Working with NIMA, NOAA Fisheries updates the information annually. A similar request was made by NOAA Fisheries in 1999 regarding NIMA's *Sailing Directions*, which is prepared primarily for U.S. mariners sailing into international waters. Working with counterparts in Canada, NOAA Fisheries prepared information on right whales and precautionary measures for mariners for inclusion in *Sailing Directions*. As a result,

both publications contain regularly updated information the vulnerability of right whales to ship strikes and precautionary measures mariners can take to avoid ship strikes.

The Safety of Life at Sea Convention-driven International Safety Management Code requires vessel companies and owners to develop procedures for safety of passengers and vessels at sea, which includes environmental protection measures and protocols. In late 1998 and early 1999, NOAA Fisheries worked with the USCG to ensure that the implementing regulations and protocol include information regarding vessel operation that is consistent with protective measures for right whales and other protected marine species. The USCG agreed with the NOAA Fisheries recommendations and has incorporated this information into relevant regulations. Therefore, domestic vessels entering U.S. ports will be required to have vessel operation plans that include precautionary measures for right whales.

Educational Materials and Outreach

A number of agencies and organizations have collaborated on developing and distributing brochures, pamphlets, and informational papers to educate mariners about the vulnerability of right whales to ship strikes. These are being distributed by the USCG when ships make port calls, and by NOAA Fisheries to port authorities and pilot's associations and at a variety of regional meetings. In an effort led by the International Fund for Animal Welfare and with partial support by NOAA Fisheries, a brief video was developed in 1999 for mariners, which includes information on the seasonal distribution of right whales.

Further Management Options

In 2000, NOAA Fisheries provided a contract with JS&A Environmental Services, Inc. to identify and assess management options to reduce the risk of ship strikes. By mid 2000, the contractor had prepared a draft discussion paper. A number of meetings and workshops were then held with shipping industry representatives to discuss the paper and options for reducing ship strikes. A final report to NOAA Fisheries is expected to be completed in 2001. The report is expected to include recommendations regarding ship routing measures and the possibility of slowing of ships in certain locations.

Regional Recovery Plan Implementation Teams

The ESA provides authority to the Secretary of Commerce (i.e., NOAA Fisheries) to establish teams to assist in implementing recovery plans by reviewing recovery activities and providing recommendations on improving such activities. As noted in previous annual

reports, NOAA Fisheries established two such teams, one in the Southeastern U.S. and one in the Northeastern U.S., to address the known impacts to right and humpback whales described in the Recovery Plans. The Implementation Teams provide advice to NOAA Fisheries and other federal and state agencies or private entities on achieving these national goals within their respective regions. The teams both agreed to focus primarily on habitat and vessel related issues and rely on the take reduction plan process under the MMPA for reducing takes in commercial fisheries.

As part of Northeast Implementation Team (NEIT) activities, a Ship Strike Workshop was held in December 1996 to inform the shipping community of their need to participate in efforts to reduce the impacts of commercial vessel traffic on right whales. The workshop summarized current research efforts using new shipboard and moored technologies as deterrents, and a report was given on ship design studies currently being conducted by the New England Aquarium and Massachusetts Institute of Technology. This workshop increased awareness among the shipping community and has further contributed to reducing the threat of ship strikes of right whales. In addition, a Cape Cod Canal Tide Chart that included information on critical habitat areas and the need for close watch during peak right whale activity was distributed widely to professional mariners and ships passing through the canal.

In 1999 and 2000, as in previous years, the team met regularly and provided recommendations or guidance to NOAA Fisheries and other agencies with regard to restricting hazardous fishing gear in right whale habitats, disentangling whales caught in fishing gear, plans for constructing a sewage outfall tunnel in Massachusetts Bay, and dredge disposal activities in Massachusetts Bay. The team and its participating agencies have also had important roles in the aircraft survey and communication system described above, as well as in the recovery of stranded or dead floating whales. In response to current needs, the NEIT reconfigured its ship strike subcommittee to address these impacts on a more formal basis.

The Southeastern U.S. Implementation Team (SEIT) was established in August 1993. It currently consists of representatives from the Georgia Department of Natural Resources, the Florida Department of Environmental Protection, NOAA Fisheries Southeast Fisheries Science Center and Southeast Regional Office, USN, MMC, Georgia Ports Authority, Canaveral Port Authority, Glynn County Commission, Glynn County, Georgia, University of Georgia, the Corps, U.S. Environmental Protection Agency, Port of Fernandina, Fernandina, Florida, the USCG, and the Jacksonville Port Authority.

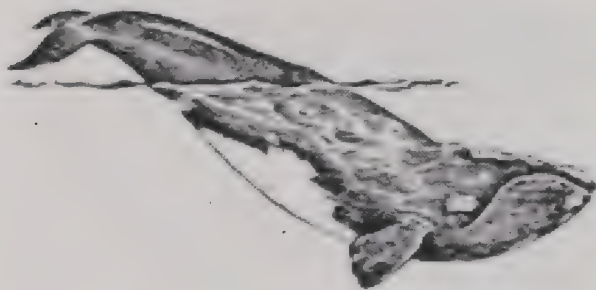
The SEIT has met regularly since being established and, among other things, has worked to develop and implement a system of aircraft surveys to detect and report the locations of right whales to mariners involving survey work, described above. The surveys are jointly funded by NOAA Fisheries, the USCG, USN, and the Corps. Members of the SEIT have also implemented a multi-agency effort to provide a local Notice to Mariners broadcast about right whale calving grounds which is broadcast four times daily by the USCG on VHF radio. The SEIT also makes recommendations to NOAA Fisheries and other agencies regarding right whale research and measures to reduce the possibility of ship strikes, and restrictions of hazardous fishing gear in right whale calving areas. The SEIT established a GIS subcommittee in the late 1990s and is progressing with work to analyze right whale sightings, vessel traffic information, and pertinent environmental data to better understand right whale distribution patterns in southeast waters and ultimately prevent human interactions with these whales. Through the SEIT and NOAA Fisheries annual support, the Right Whale Newsletter is published quarterly as a source of news, updates, and lists of recent publications for the right whale community.

Interagency Consultation Under the Endangered Species Act

Section 7 of the ESA mandates that federal agencies ensure that any action they authorize, fund, or carry out is:

"not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat of such species..."

Federal agencies comply with this requirement through interagency consultations that involve NOAA Fisheries, the USFWS, or both, depending on the species affected by the action. Interagency consultations involve procedures that are designed to identify the intended and unintended consequences of a federal agency's action; federal actions that are likely to adversely affect listed species or designated critical habitat undergo more rigorous evaluations that conclude with a "biological opinion (BO)." If the activity is likely to "jeopardize," then a "jeopardy" determination is issued. If not, then a "non-jeopardy" determination is made. A considerable amount of the recovery activities for all endangered and threatened species are implemented through consultations between NOAA Fisheries and other federal agencies. As a result of these consultations, NOAA Fisheries issues a BO on the activity, which indicates whether the activity is likely to jeopardize the continued existence of the species throughout all or a portion of its range.



and provides reasonable and prudent alternatives to the activity. The ESA also requires re-initiation of consultation if new information reveals that listed species or critical habitat may be affected in a manner, or to an extent, not previously considered.

In the last several years, NOAA Fisheries has conducted consultations on the activities of a number of U.S. fisheries and ship operations by federal agencies that have resulted in modifications of fishing operations and vessel operating procedures. Recent consultations include BOs on: (1) USCG vessel operations and other activities in 1995 and 1996; (2) USN activities in 1997; (3) the American Lobster Fishery in 1996; (4) the Northeast Multispecies Groundfish Fishery in 1996; and (5) the Atlantic Fisheries for Highly Migratory Species in 1997. In 2000, NOAA Fisheries requested re-initiation of Section 7 consultations on the Multi-species, Monkfish, Spiny Dogfish, and American Lobster Fisheries Management Plans. These requests were made in light of several right whale entanglements in 1999. NOAA Fisheries cited new information provided by the International Whaling Commission regarding modeling results that the Western North Atlantic right whale population may be declining. The BOs resulting from these consultations will be issued in 2001.

NOAA Fisheries-Supported Research Activities

Right whale research and management activities within NOAA Fisheries have been funded by Congress since 1986. Initial appropriations totaled \$500,000 in FY1986, and \$200,000-\$250,000 annually for FY1987-1997. Congressional funding for right whales increased to \$350,000 in FY1998, and NOAA Fisheries supplemented this level to total of about \$1.0 million. In FY1999, appropriations increased to \$1.0 million and NOAA Fisheries supplemented this to a total of about \$1.4 million. In FY2000 the appropriated amount increased substantially to \$4.1 million.

In addition to supporting or implementing a number of recovery actions discussed above such as aircraft surveys to provide right whale sighting locations to

mariners, operation of the Mandatory Ship Reporting system and analysis of data from the system, enforcement of fishing regulations, and vessel surveys for population assessment, NOAA Fisheries supported a number of right whale research and data curation activities in 1999 and 2000. A brief description of these activities follows.

Fishing Gear Modifications to Reduce Entanglement

As noted above in the section on the Atlantic Large Whale Take Reduction Plan, right whale entanglement in fishing gear is a significant threat to right whale recovery. As in previous years, NOAA Fisheries provided substantial support of research in 1999 and 2000 on fishing gear modifications aimed at reducing the likelihood that a whale will become entangled or improving the likelihood that an entangled whale could free itself. Work in this regard began in 1997, continued through 2000, and will be ongoing in 2001. A number of possible modifications have been identified and previously developed devices were field tested in actual fishing operations throughout the region in 1999 and 2000. As in previous years, the focus of this work is to involve the fishermen in the development, testing, and implementation of modifications found to be effective. Specifically, the program involved developing biodegradable rope; providing grants to fishermen for mini-projects; developing gear to test disentanglement forces; development of timed-release device; determining the theoretical pulling forces of an entangled whale; testing various weak links to facilitate a whale freeing itself; and acoustical release feasibility studies. The results of this ongoing research is the subject of discussion by the ALWTRT, and is one of the centerpieces of the plan and ongoing efforts to reduce entanglement (work conducted by Northeast Regional Office and various contractors).

Photo-Identification and Sighting Data Bases

Photo-identification of individual whales is perhaps one of the best ways to monitor trends in North Atlantic right whale abundance and demography. Photographic data, and associated sighting data, provide information on individual longevity and social interactions, habitat use, calving history, and movements and migrations. Ongoing analysis of these data and collection of new photos is central to a range of right whale science and management goals. Long-term sighting and photo-identification databases are currently maintained, newly collected information is added cumulatively, and data products and analyses are provided to collaborating investigators. As in the past, in 1999 and 2000, NOAA Fisheries supported photo-identification studies and supported ongoing maintenance and curation of the database of right whale sightings. (New England Aquarium)

As noted above, NOAA Fisheries and other agencies support aircraft surveys for right whales, primarily to reduce the likelihood of ship strikes by identifying whale locations for ships. These surveys also provide individual whale photo-identifications. Each year, photos from the program and its numerous partners, as well as those provided by field researchers, collectively contribute a substantial amount of information to the photo-identification data.

As with the photo catalog, the North Atlantic Right Whale Sighting Database represents an essential resource that underpins much of the fundamental analysis of this population. The data base includes archival right whale sighting records, and new sighting is provided from all sources. Funding for continued maintenance of the database as well as for production of a much-needed sightings-per-unit-effort analysis of existing data therein was provided in 1999 and 2000. (University of Rhode Island)

Satellite Tracking, VHF Radio Tracking, and Acoustic Tagging Studies

There is a general lack of information on where a substantial portion of the Western North Atlantic population over-winters. Also, information about habitat use and specific behavior in certain areas is incomplete. In addition, little is known about whale reactions to oncoming ships and why the species is vulnerable to collisions with ships. In the last two decades, tools have been developed to help address these and other basic questions about large whale movement, migrations, habitat use, and behavior. These include devices attached to whales and other marine mammals that include satellite tags, very high-frequency (VHF) radio tags, time-depth recorders, and acoustic tags. Satellite tags provide information on whale locations mediated through satellites and can help assess long distance movements. VHF radio tags are typically tracked from a ship or aircraft, have short range (e.g., kilometers or tens of kilometers) and provide relatively fine scale movement (e.g., habitat use), information on dive times, and surface behavior, and have the advantage of providing location data around the clock when visual studies are not possible. Time depth recorders provide a record of whale movement and behavior while at depth, and can provide insight about reaction to human stimuli and environmental features. Recently developed acoustic recording tags have been coupled with time depth recorders to provide information on sound signals produced and received by a tagged whale. These are generally short duration benign tags (attached with a suction cup) that can be used to assess a whale's reaction to various sound sources. In response to basic uncertainties about whale behavior and biology and given refinement of tools to address them, NOAA Fisheries supported a number of studies utilizing these tools.

In 1999 and again in 2000, NOAA Fisheries provided support for VHF-radio tracking studies of right whales in the Southeast U.S. critical habitat. The purpose was to provide data for evaluation of the size of Florida/Georgia calving ground critical habitat, further quantify dive time characteristics, further assess the probability that an individual would be sighted by an observer on a ship or aircraft, and where possible, provide individual whale sighting locations to transiting ships. Pilot field studies were initiated in 1999 to assess right whale fine-scale movements and submergence times. The goal was to expand this study in Southeast U.S. waters in 2000 by using implantable tags. Unfortunately and unexpectedly, very few whales occurred in these waters in winter/spring 2000, one of the lowest calving years on record, and no tags were deployed. (SEFSC)

In conjunction with the USN's Office of Naval Research, NOAA Fisheries supported a large scale satellite tagging program in 2000. The tags can remain on the whale for up to several months and the goal was to attach tags on whales leaving summer/fall feeding grounds and to track movements for as long as possible. In addition, concurrent assessment of oceanographic parameters and prey density and distribution were collected to help quantify environmental factors that dictate right whale occurrence and distribution. Such data are vital to understanding habitat use and will provide important information to predictive modeling exercises (see below), which will help in identifying actions aimed at reducing impacts from the fishing and shipping industries. In summer 2000 a total of 16 tags were attached and those tagged whales were tracked for a total of 396 days. One whale, an adult female, was tracked for 130 days throughout waters off New England and then to the Southeast U.S. calving ground. Whale locations were provided to the NOAA Fisheries Sighting Advisory System to be relayed to mariners in the vicinity. Oceanographic data, including right whale prey distribution data, were collected throughout the Bay of Fundy and Scotian Shelf. Two whales tagged had not previously been seen or photographed and these whales ranged widely. While results were promising, a technical problem with the tag's antenna prevented collection of further data. (Oregon State)

NOAA Fisheries also provided funding for a study of right whale behavior using acoustic tags and time depth recorders. The tag collects a variety of data, including three-dimensional orientation and movement of the whale and dive depth. The tag also records ambient noise and provides critical information on what the right whale is hearing as it responds (or does not respond) to sounds of approaching ships. The tag was successfully tested in 1999 and deployed in a series of playback and other experiments in the Bay of Fundy in summer 2000. This work will continue in 2001. (Woods Hole Oceanographic Institute)

Detecting Whales at Sea

It is possible that the risk of ship strikes could be reduced if ways were found to improve detection of whales at sea. A number of techniques are being studied to assess their feasibility and capabilities of detecting whales. Among these are: 1) "active acoustics"; 2) "passive acoustics"; and 3) enhanced visual detection. Active acoustic studies use SONAR or sound producing devices that identifies an entity in the water based on the returning echo. In 2000, NOAA Fisheries provided funding for a pilot study of an active acoustic sensing device. This work is ongoing and the device is being refined. Similarly, studies were funded of passive acoustic devices "that is, listening devices used to detect and locate whales based on the vocalizations they emit." Finally, NOAA Fisheries supported work in 2000 to study the feasibility of using an infrared video device to detect whales at the surface based on heat emitted from the animal's body or contained in its exhalation. (NEFSC, SEFSC and UNC, Wilmington)

Predictive Modeling

As noted in the previous annual report, NOAA Fisheries convened a workshop in October, 1998 in Woods Hole, Massachusetts to evaluate the possibility of predicting right whale occurrence based on environmental data, and to do this with sufficient reliability to be of use in improving research and management of the species. The workshop concluded that given certain measurable environmental features (e.g., prey distribution and oceanographic factors that influence prey distribution), it may be possible to assess where right whales are likely to occur. If so, reduction of adverse effects from human activities may be enhanced. In 1999 and again in 2000, NOAA Fisheries provided support of studies to examine correlations between right whale distribution and environmental data (notably on sea surface temperature). Development of such a system or a related one would be extremely useful in crafting and implementing management measures to mitigate human-related conflicts. (University of Massachusetts)

GIS Analyses

Geographic Information Systems (GIS) may be one of the most important tools for providing descriptions of right whale distribution — particularly relative to environmental features assessing critical habitat boundaries, and other analyses. In 1999 and 2000 funds were provided to construct and maintain a right whale GIS. An important focus will be the development of a predictive model of right whale habitat use and movements to determine where right whales would most likely occur in a given period. The GIS would complement existing and ongoing right whale research by building and maintaining right whale specific and ancillary environmental spatial data sets, compiling data on vessel traffic from aerial surveys and the Mandatory Ship Reporting system; and analyzing these

data to re-evaluate the boundaries of the right whale critical habitat, evaluate re-sightings of known right whales for site fidelity, and other factors influencing habitat use, and analyze whale habitat use patterns in relation to physical and biological variables such as sea surface temperature. Ultimately, these data will be used to perform risk analyses to aid decision makers in determining how best to protect right whales in U.S. waters. (Florida Marine Research Institute and the SER)

Genetic Analysis

Genetic analyses have been underway since 1988 to determine or clarify information on taxonomy, matriline, genealogies, and habitat-use patterns of right whales. These analyses, including those supported in 1998, 1999, and 2000 are helping to provide insights into stock definition and genetic variability within a stock. The goals of this research are to: assess the population's genetic variability, identify the number of reproductive animals and their reproductive status, identify social units and individual association patterns in each habitat area, better understand mating relationships, identify matriline, and determine the degree of inbreeding, population viability, and other factors essential to management. Recent scientific investigations have compared the genetic variability of northern and southern right whales, and found the former to be significantly less diverse. (CCS)

Whale Conservation Fund

Efforts by the MMC led to creation of the National Large Whale Conservation Fund, a trust administered by the National Fish and Wildlife Foundation (NFWF) through which research on endangered large whales could be supported. The goal is to establish a trust, supported by public and private funds, through which research and conservation work can be supported. In 2000, NOAA Fisheries transferred funds to NFWF to establish the fund and begin initial fundraising.

Reproductive Anomalies and Health Assessment

Although anthropogenic mortality and serious injury from entanglements and ship strikes almost certainly inhibit recovery of right whales, there is increasing evidence that intrinsic biological problems also exist. In particular, some studies suggest that the reproductive rate of this population has declined in the last decade. Research into the possible causes of this reproductive failure is needed and NOAA Fisheries turned attention to addressing this need.

Addressing the issue of biological problems and diminished reproduction is potentially complex, and requires input and assessment from scientists with a broad range of expertise and accomplished individuals in the relevant disciplines. To this end, a workshop of international experts was held in April 2000 in Falmouth, Massachusetts. A draft workshop report, which

includes a recommended research program, was prepared and submitted to the International Whaling Commission. In addition to NOAA Fisheries support and technical expertise, the workshop was supported by the International Whaling Commission, the International Fund for Animal Welfare, and the Island Foundation. Based, in part on workshop results, a number of right whale reproduction and health studies were supported by NOAA Fisheries in 1999 and 2000 described below.

Reproductive endocrinology. Reproductive problems could involve males, females or both genders. In females, abnormally low reproductive rates may be due to reduced fecundity, spontaneous abortion or unrecorded neonatal mortality; therefore, determination of the true pregnancy rate is of particular importance to discriminate among these possible scenarios. Pregnancy determination is possible through hormone analysis; this is usually accomplished by analysis of blood samples, a technique which is impractical in large whales. Recently, techniques have been developed which allow endocrinological assays (measuring the metabolites of reproductive hormones) to be conducted from fecal matter by radioimmunoassay. This material can certainly be obtained from right whales on an opportunistic basis. Assessment of the use of blubber samples for the same purpose is also possible. Hormone analysis should also involve males since, in other wildlife species, evidence of endocrine disruption is most frequently found in this gender. Male hormone cycles have less natural variability than those of females, and may be easier to assess for comparative purposes. (New England Aquarium).

Health assessment and multivariate analysis. Observations of North Atlantic right whales have led a number of scientists to the qualitative assessment that some individuals in this population appear to be in questionable health. In particular, observations of skin lesions have become much more frequent in recent years. Whether this is indicative of a chronic problem in the population that affects reproduction is unknown, but further investigation is clearly warranted. In this research, photographic monitoring of skin lesions will continue, and the resulting data will be assessed by experts in dermatology and veterinary medicine. These studies also involve additional assessments of body condition. (New England Aquarium).

Body Condition Studies. Since lactation in mysticetes is energetically very expensive, females with diminished fat reserves should experience relatively low reproductive success. Nutritional stress is one of the most plausible and testable hypotheses to explain reproductive failure in right whales. Preliminary analyses of blubber thickness suggest that individuals from the North Atlantic are significantly less robust than southern right whales sampled off South Africa. This is suggestive of nutritional stress, but further studies are required to confirm this finding and to assess the extent of its impact

on reproduction. (Body condition studies were administered through the Woods Hole Oceanographic Institution including sample collection by the New England Aquarium).

Stress Analysis. The Southwest Fisheries Science Center has developed assays to measure hormones indicative of stress, both long-term (e.g., nutritional) and short-term (e.g., disturbance), in cetaceans. The assay can be used on a relatively small skin sample, and has been used to assess stress levels in dolphins in the Eastern Tropical Pacific and Alaskan beluga whales. The assay was applied to right whales in a small-scale study to determine feasibility of assessing stress levels in right whales. (SWFSC)

Size From Photogrammetry. One of the critical life history variables for which few or no data exist is body length. Measuring whales at sea using stereoscopic cameras (i.e., photogrammetry) allows determination of size structure of the population and provides qualitative measures of individual health and presence/absence of pregnancy in a particular individual. An aerial-based photogrammetric system developed for bowhead, Northern right, and blue whales by the Southwest and Alaska Fisheries Science Center was used in the Bay of Fundy in summer 2000. Several hundred photographs were taken, tens of whales were measured and many more photo-identified. (Aircraft survey contracts by NEFSC and technical expertise from the SWFSC and AFSC).

Summary

Much work is needed to recover severely depleted right whale populations. Congressional appropriations for a right whale recovery program have steadily increased in the last several years. NOAA Fisheries has responded by building a program that focuses primarily on reducing threats to the population from human activities. The program has also initiated assessments of individual health and population reproductive anomalies, and supports gathering data and maintaining data bases on basic population abundance, status, demographics, and distribution.

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health and stranding response

The Marine Mammal Health and Stranding Response Program (MMHSRP) evolved in the late 1980's in response to a growing concern about marine mammals washing ashore in U.S. waters. The MMHSRP was formalized in 1992 as an amendment to the Marine Mammal Protection Act (MMPA), and NOAA Fisheries was designated as the lead agency to coordinate related activities for species under the jurisdiction of the Department of Commerce (whales, dolphins, porpoise, seals and sea lions). The goals of the MMHSRP, as mandated by the MMPA, are to assess health trends in marine mammals, to facilitate the collection and dissemination of data, to correlate health with available data on physical, chemical, environmental, and biological parameters, and to coordinate effective responses to unusual mortality events. To meet these goals, the MMHSRP is made up of several activities and programs that include:

- stranding networks
- disentanglement network
- unusual mortality event response and investigation program
- biomonitoring program
- tissue and serum bank program
- analytical quality assurance program
- information management program

National Marine Mammal Stranding Network

Scientists and various organizations make up a broad network of people who participate in the stranding network to help NOAA Fisheries carry out the mandates of the MMPA. NOAA Fisheries oversees the activities of the stranding networks through a National Coordinator and five regional coordinators. NOAA Fisheries formalizes these partnerships with cooperative agreements known as Letters of Agreement or a Memorandum of Understanding. Most of the stranding network participants are volunteers from non-profit organizations but others include aquaria, universities, state and local governments.

As part of their agreements with NOAA Fisheries, stranding network members collect certain basic biological data from strandings, including species name, sex, length, location, and any evidence of human interaction. They are also encouraged to collect other data and tissues for use in scientific research, for determination of the causes of stranding and death, for addition evidence of human interactions, for educational purposes, for life history investigations and biological or health research needs.

"We're not just a salvage network anymore"

health, tissue banking, unusual mortality event response, tissue banking and teaching awareness



Total Number of Cetacean and Pinniped Strandings in the U.S. 1990 - 2000

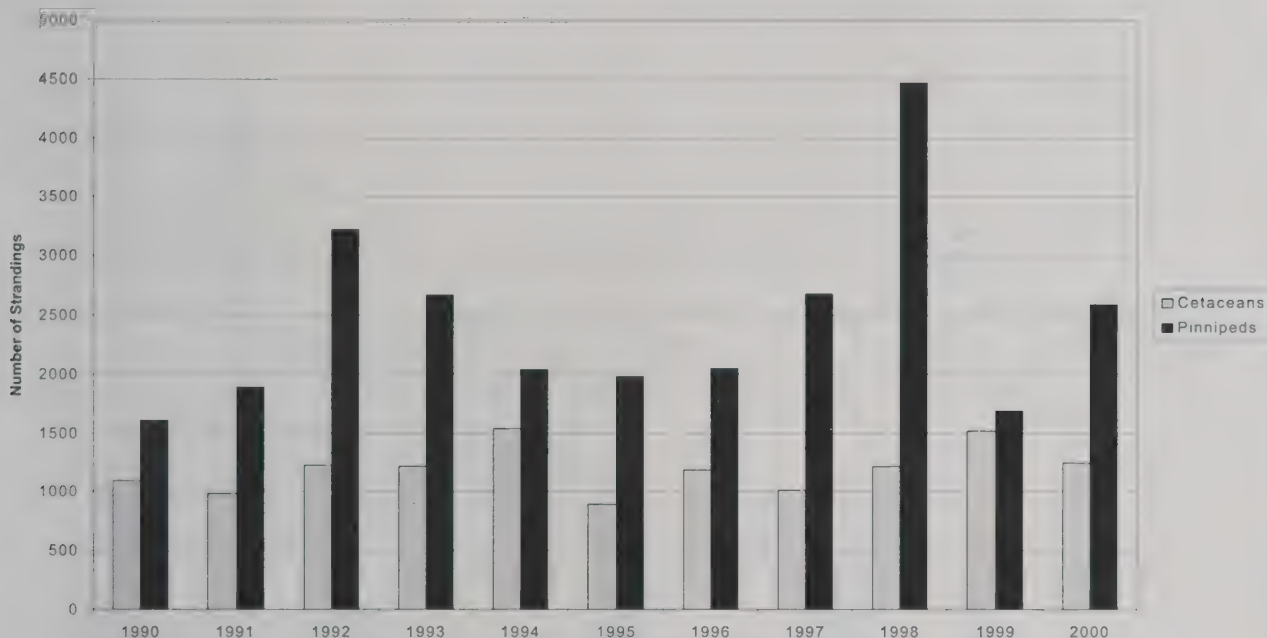


Figure 1

Approximately 40,000 stranded marine mammals have been reported by the stranding network with an average of 3,600 strandings per year (range 2,694-5,682). **Figure 1** shows the number of strandings reported over the past decade (1990-2000). The highest number of strandings were reported in 1992-1993 and 1997-1998. For the decade, the number of reported strandings peaked in 1998. These were El Nino years and the impact was seen most notably on the West coast with California recording the highest number of animals, principally pinnipeds. Food resources dramatically decrease during El Nino years and have a profound impact on pinnipeds. The impact especially affects the very young - pups are abandoned and weanlings and juveniles starve. Also contributing to the increase in 1998 was the domoic acid unusual mortality event involving primarily pinnipeds off the West coast.

Peak years for cetacean strandings were 1994 and 1999. In 1994, 220 bottlenose dolphins stranded off Texas. This represented almost two-times the annual average. The probable cause was a Morbillivirus outbreak. In 1999, 223 harbor porpoises were reported stranded from Maine to North Carolina.

This was a four-fold increase over the annual average. The most likely cause was interspecific aggression due to sea surface temperature/prey shift in the Mid-Atlantic.

The regional stranding networks reported 3,183 strandings in 1999 and 3,824 strandings in 2000. **Figures 2-5** (on the following pages) show the number of reported strandings for each region broken down by total number reported, number of live vs. dead, and number of released following rehabilitation (no breakdown provided for the Southwest region for 1999). Marine mammals that strand alive are assessed by the stranding network and based on the assessment, the following courses of action may be taken: (1) the animal is deemed healthy and/or in no danger and is released on site, (2) deemed healthy but relocated to a safer area and released, (3) deemed sick and in need of treatment and is admitted into rehabilitation, (4) stranded as an orphan and is admitted into rehabilitation, or (5) is humanely euthanized. Marine mammals that are found dead are also assessed and when feasible, samples are taken to determine the cause of death, and to gain insight into marine mammal biology and health. (See Appendix B, Tables 1-3 for further detail.)

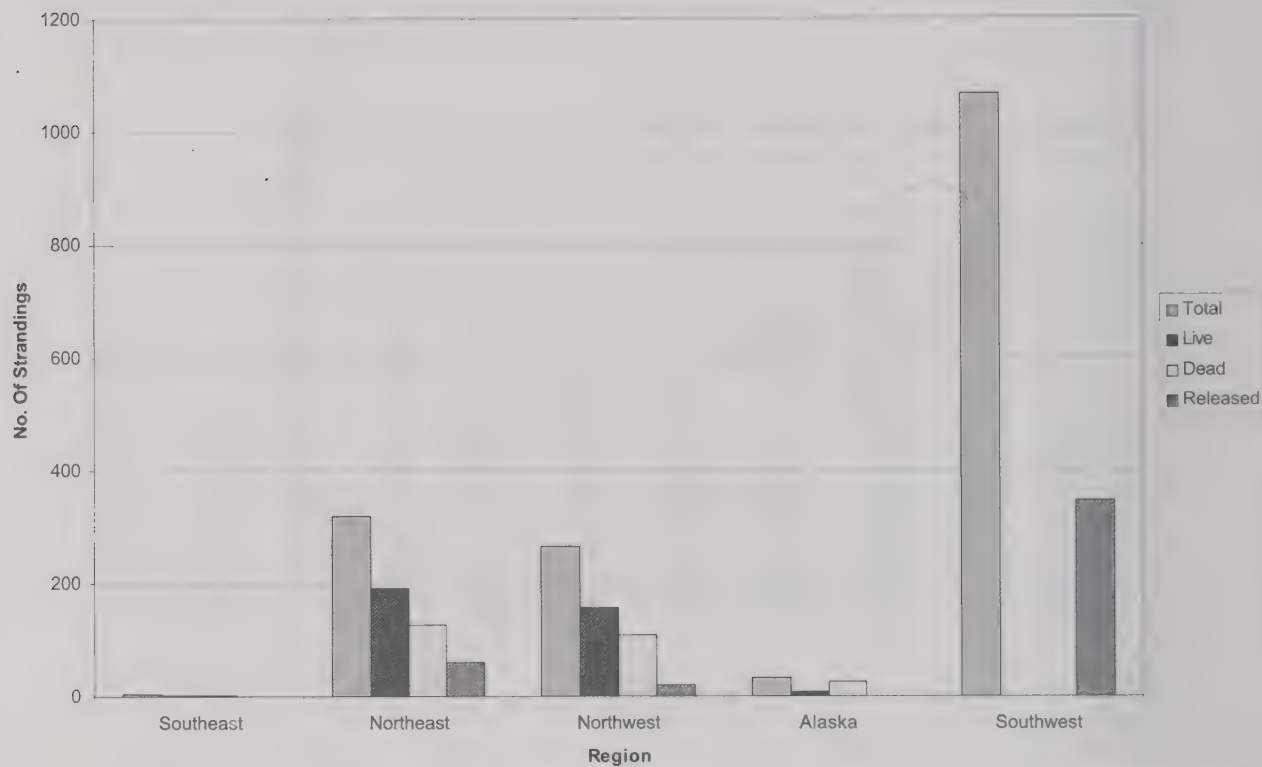
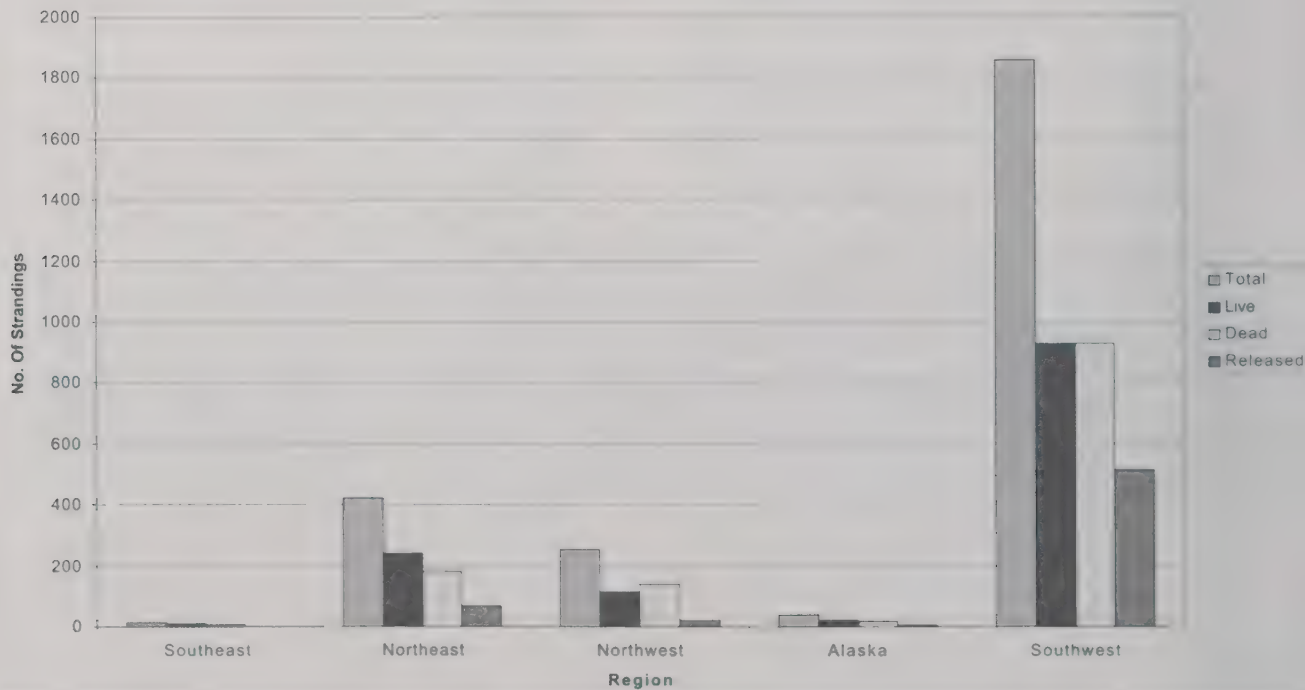
Figure 2**Total Pinniped Strandings By Region 1999****Figure 3****Total Pinniped Strandings By Region 2000**

Figure 4 Total Cetacean Strandings By Region 1999

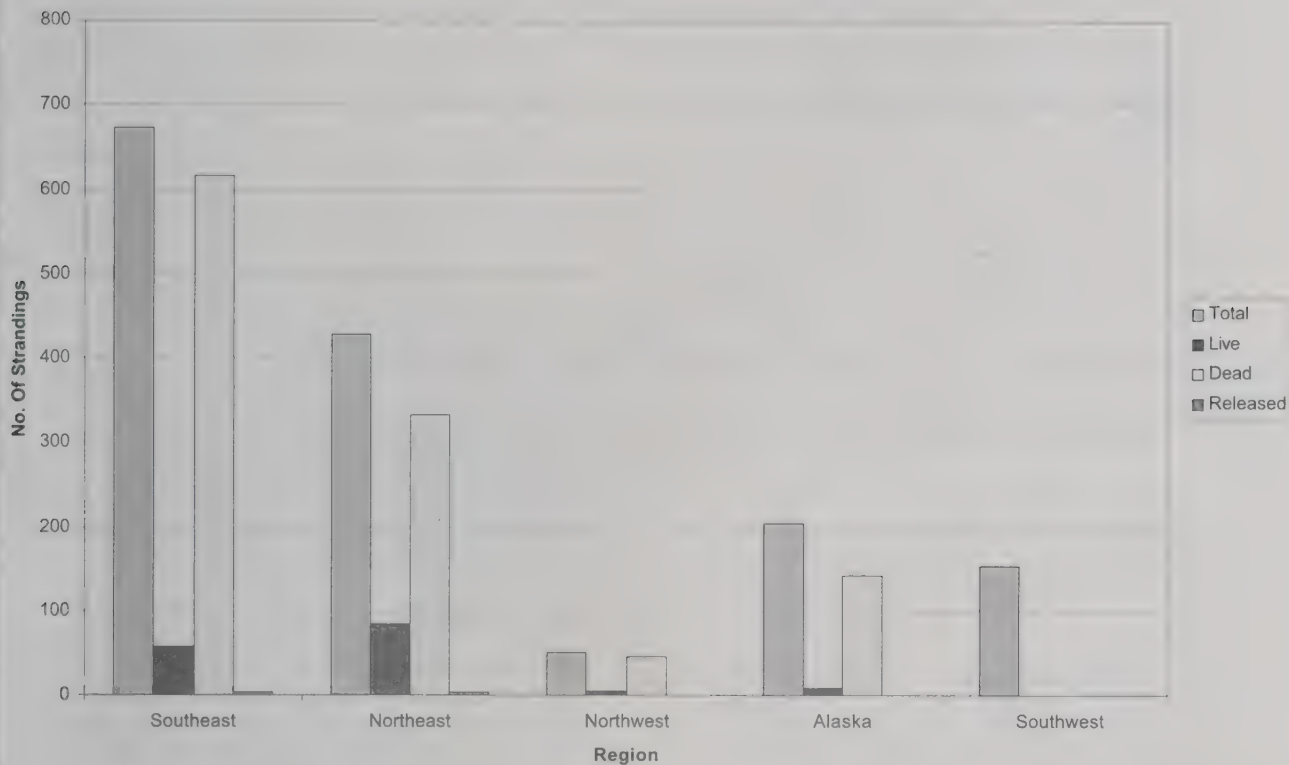
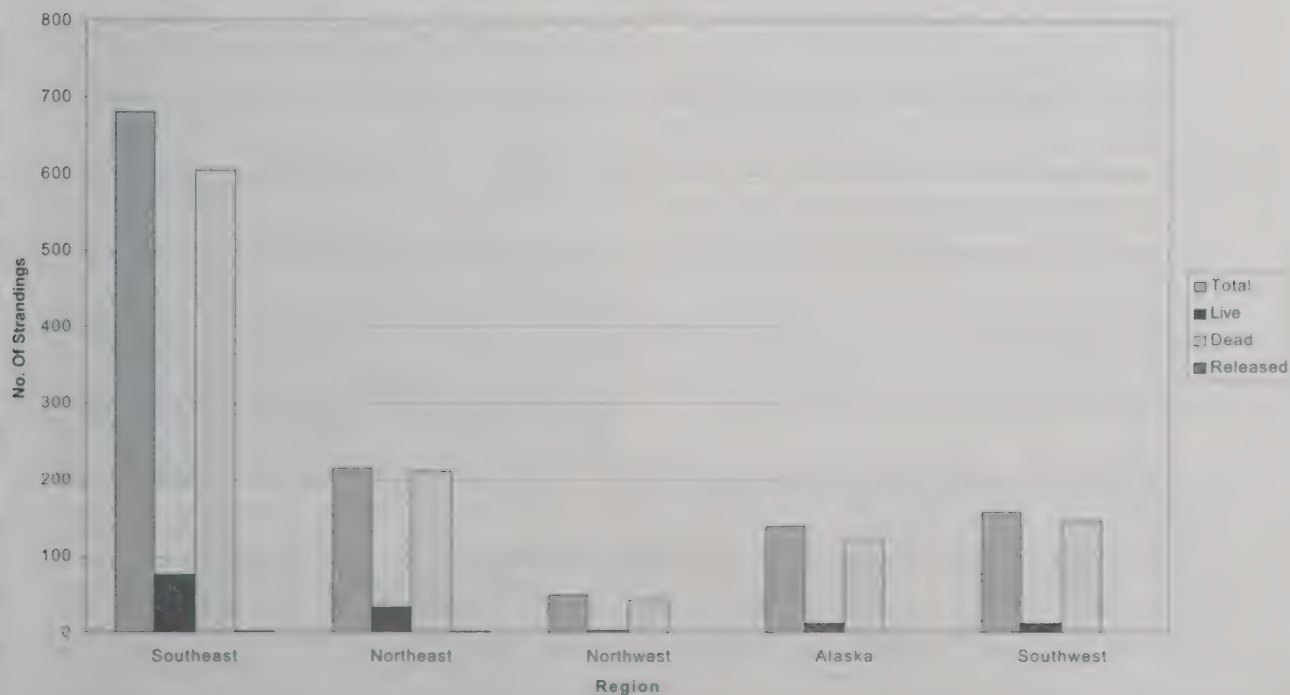


Figure 5 Total Cetacean Strandings By Region 2000



Northeast Region Stranding Network

The Northeast network consists of authorized stranding network responders in ten coastal states from Maine through Virginia. A total of 746 marine mammal strandings were reported in 1999 (318 pinnipeds and 428 cetaceans) and 637 reported in 2000 (423 pinnipeds and 214 cetaceans).

Pinnipeds: In 1999, of the 318 pinnipeds that stranded, 192 were alive and 126 were dead. Sixty-one (32% of live stranders) were successfully released immediately after on-site examination or following rehabilitation (2 gray seals, 13 harbor seals, 37 harp seals, and 9 hooded seals). In 2000, of the 423 pinnipeds that stranded, 242 were alive and 181 were dead. Sixty-nine (29% of live stranders) were successfully released following rehabilitation (3 gray seals, 20 harbor seals, 41 harp seals, and 5 hooded seals).

Cetaceans: In 1999, of the 428 cetaceans that stranded, 84 were alive and 332 were dead. Three were successfully released immediately after on-site examination or following rehabilitation (1 harbor porpoise and 2 long-finned pilot whales). In 2000, of the 214 cetaceans that stranded, 33 were alive and 181 were dead. None of the cetaceans admitted into rehabilitation were eligible for release back to the wild following rehabilitation. A common dolphin was successfully rehabilitated, but was considered unreleasable and was retained for public display. A bottlenose dolphin calf was rescued in the Shrewsbury River, New Jersey in 2000 and was also retained for public display because of its young age.

Mass Strandings: In 1999, the Northeast stranding network responded to three mass strandings along the coast of Massachusetts. On March 7, 1999, six white-sided dolphins (*Lagenorhynchus acutus*) mass stranded in Chipman's Cove in Welfleet, Massachusetts. Two of the animals were tagged and immediately released but later re-stranded dead. Between March 19 and March 24, 1999, 52 white-sided dolphins stranded in various locations along the inside coast of Cape Cod, Massachusetts. Four of the animals were tagged, relocated, and immediately released. On December 15, 1999, three common short beaked dolphins (*Delphinus delphis*) stranded in Brewster, Massachusetts, and one more stranded in Eastham on December 17. Three of the animals were tagged and immediately released, but later re-stranded dead.

In 2000, seven white-sided dolphins stranded at several locations in Welfleet, Massachusetts between April 4 - 11, 2000. No animals survived. Two white-sided dolphins stranded in Eastham, Massachusetts on August 14, 2000. The animals were tagged, taken off-shore by boat, held in deep water and then immediately released. Between August 24 and August 28, 2000, more than 40 white-sided dolphins mass stranded in the Herring River in Welfleet, Massachusetts. There were 12

mortalities, and over 25 were herded into open water using pingers. Eleven long-finned pilot whales (*Globicephala melas*) stranded on a sandbar in Nantucket, Massachusetts on July 4, 2000. Two of the whales were able to free themselves and return to open water.

Annual Network Meeting and Training: The National Aquarium in Baltimore, Maryland hosted the annual Northeast Stranding Network Meeting in 1999 and The Marine Mammal Stranding Center in Brigantine, New Jersey hosted it in 2000. The 1999 meeting in Baltimore was conducted over a four day period and included a large whale workshop, a business meeting for stranding network letter holders, an open science session, a panel discussion and concurrent workshops on strandings and related issues. Dr. James Mead of the Smithsonian Institution was the guest speaker and presented the evolution of the stranding network in the U.S. During the 2000 meeting in Brigantine, business was discussed among stranding network letter holders and presentations were made by each State in the Northeast stranding network.

Southeast Region Stranding Network

The Southeast network consists of authorized stranding network responders in eight coastal states (North Carolina through Texas), Puerto Rico and the U.S. Virgin Islands. A total of 677 strandings were reported in 1999 (4 pinnipeds and 673 cetaceans) and 693 in 2000 (13 pinnipeds and 680 cetaceans).

Pinnipeds: In 1999, of the four pinnipeds that were reported stranded, two were alive and two were dead. In 2000, of the 13 pinnipeds that were reported stranded, seven were alive and six were dead. Two (29% of live stranders) were released back to the wild following rehabilitation (2 harbor seals).

Cetaceans: In 1999, of the 673 cetaceans that were reported stranded, 57 were alive and 616 were dead. Three cetaceans were successfully rehabilitated and released back to the wild (1 bottlenose dolphin and 2 pantropical spotted dolphins) and one bottlenose dolphin was successfully rehabilitated, but was considered unreleasable and was retained for public display. In 2000, of the 680 cetaceans that were reported stranded, 76 were alive and 604 were dead. One bottlenose dolphin was successfully rehabilitated and release back to the wild.

Mass Strandings: In 1999, the Southeast stranding network responded to three mass strandings. On May 5, 1999, two short finned pilot whales stranded near Sanibel, Florida. Three male pan-tropical spotted dolphins stranded near Indian River, Florida on August 2, 1999. On August 21, 1999, five rough-toothed dolphins mass stranded on Wassaw Island, Georgia. Plastic was found embedded in the stomach wall of one of the animals.

In 2000, the Southeast stranding network responded to three mass strandings. On January 16-17, 2000 a mass stranding of offshore Atlantic stock bottlenose dolphins occurred in the Florida Keys. Approximately 150 dolphins mass stranded along the bayside of Long Key. Most of the animals were free swimming and did not beach themselves. The majority of the animals (approximately 120) were escorted to deeper water and headed back out to sea. However, 31 died in the event and one was admitted into rehabilitation (orphaned calf). Bottlenose dolphins do not typically mass strand and historical records for the Florida Bay only show two other mass strandings of bottlenose dolphins. Both involved a far smaller number of animals (in 1987 only three animals stranded and in 1992 only six animals stranded). Two female Atlantic spotted dolphins stranded in Frisco, North Carolina on February 9, 2000. Both animals appeared to be in good health, and there were no signs of human interaction. On March 24, 2000, four bottlenose dolphins mass stranded on a sandbar in Ponce Inlet, Florida. Two of the animals were a mother and calf pair. All four animals were pushed off of the sandbar where they swam to deeper waters.

Annual Network Meeting and Training In April 2000, the Southeast marine mammal stranding network held a two day workshop in Brunswick, Georgia. State stranding statistics and regional management issues were discussed. Much of the meeting was dedicated to presentations made by many of the Southeast stranding network members. A dolphin necropsy wetlab was also a part of this meeting.



members of the Southeast Stranding network examine a dead Atlantic bottlenose dolphin that washed ashore. L. Barre. NOAA Fisheries

Northwest Region Stranding Network

The Northwest Regional stranding network covers the coasts of Oregon and Washington including the Puget Sound coastline. A total of 317 marine mammal strandings were reported in 1999 (267 pinnipeds and 50 cetaceans) and 304 in 2000 (255 pinnipeds and 49 cetaceans).

Pinnipeds: In 1999, of the 267 pinnipeds that were reported stranded, 157 were alive and 110 were dead. Twenty-one (13.4% of live stranders) harbor seals were released back to the wild following rehabilitation. In 2000, of the 255 pinnipeds that were reported stranded, 113 were alive, 139 were dead and for three the condition was not reported. Twenty-one (18.6% of live stranders) pinnipeds were successfully rehabilitated and released back to the wild (18 harbor seals and 3 Northern fur seals).

Cetaceans: In 1999, of the 50 cetaceans that were reported stranded, five were alive and 45 were dead. In 2000, of the 49 cetaceans that were reported stranded, five were alive, 42 were dead and for two the condition was not reported.

Annual Network Meeting and Training: In 1999, NOAA Fisheries Northwest Region and the National Marine Mammal Laboratory, in cooperation with Washington Department of Fish and Wildlife and the Olympic Coast National Marine Sanctuary, conducted three workshops for public officials who may take marine mammals during the course of their official duties under MMPA section 109(h)(1). The workshops were attended by representatives from federal, state, and local agencies, with responsibilities in shoreline areas including wildlife or marine resource management, public safety and law enforcement. Workshops covered recognition and basic life history of local marine mammals, regulations, research requests, public relations strategies, and reporting.

Southwest Region Stranding Network

The Southwest network consists of LOA holders in California and Hawaii.

California: A total of 1,220 marine mammal strandings were reported in 1999 (1066 pinnipeds and 154 cetaceans) and 2,016 in 2000 (1857 pinnipeds and 159 cetaceans).

Pinnipeds: In 1999, 348 pinnipeds were released back to the wild following rehabilitation (168 California sea lions, 132 Northern elephant seals, 44 harbor seals, 2 Guadalupe fur seals, 1 Northern fur seal, and 1 Northern sea lion). A breakdown for live vs. dead strandings is not currently available for 1999. In 2000, of the 1,857 pinnipeds that were reported stranded, 930 stranded

alive and 927 were dead. There were 514 pinnipeds (55% of live stranders) released back to the wild following rehabilitation (335 California sea lions, 129 northern elephant seals, 47 harbor seals, 2 northern fur seals, and 1 Guadalupe fur seal).

Cetaceans: A breakdown for 1999 live vs. dead strandings is not currently available. In 2000, of the 159 cetaceans that were reported stranded, 12 were alive and 147 dead. Three (25% of live stranders) were immediately released from the beach following the stranding (1 bottlenose dolphin and 2 Risso's dolphins). None were retained for permanent captivity.

Annual Network Meeting and Training: In February 2000, the Fort MacArthur Marine Mammal Care Center and the Cabrillo Marine Aquarium hosted a three-day stranding network conference. The conference included reports from the various stranding organizations summarizing their past year's activities, presenting scientific talks about rehabilitation and research of pinniped, cetacean, and sea otters and touring the local rehabilitation facilities.

Hawaii: Three marine mammal strandings (all cetaceans) were reported in 1999 (incomplete reporting year) and 14 in 2000 (3 pinnipeds and 11 cetaceans).

Pinnipeds: In 2000, there were three Hawaiian Monk Seals that stranded on Kauai. Fish hooks were removed and the animals were released.

Cetaceans: In 1999, of the three animals that were reported stranded, one stranded alive and two dead. The live stranded animal (melon-headed whale) was towed out to sea and released. In 2000, of the 11 animals that were reported stranded, three stranded alive and eight stranded dead.

Alaska Region Stranding Network

A total of 238 marine mammals were reported stranded in 1999 (33 pinnipeds and 205 cetaceans) and 177 in 2000 (38 pinnipeds and 139 cetaceans).

Pinnipeds: In 1999, of the 33 pinnipeds that were reported stranded, eight were alive and 25 were dead. In 2000 of the 38 pinnipeds that were reported stranded, 22 were alive and 16 dead. Three pinnipeds (13.6% of live stranders) were released back to the wild following rehabilitation (3 harbor seals and 1 ring seal).

Cetaceans: In 1999, of the 205 cetaceans that were reported stranded, eight were alive and 142 were dead. The stranding condition of two animals was undetermined. In 2000, of the 139 cetaceans that were reported stranded, 12 were alive and 123 dead. The stranding condition of four animals was undetermined.

Mass Strandings: On August 29, 1999, 58 beluga whales mass stranded on Turnagain Arm in Southcentral Alaska. Most of the animals freed themselves during the following tidal cycle but five died. On September 9, 1999, 12 beluga whales mass stranded on Indian Island in Southcentral Alaska. All freed themselves during the following tidal cycle.



Figure 1. A large number of beluga whales mass stranded on Turnagain Arm, Alaska, in August 1999.

Disentanglement Network

A specialized subset of the stranding networks on the East coast of the U.S. is the large whale disentanglement network. NOAA Fisheries established a large whale disentanglement program, based on successful disentanglement efforts by the Center for Coastal Studies (CCS) as well as provisions set forth in the Final Recovery Plan for the Northern Right Whale. These activities are coordinated by NOAA Fisheries regional stranding coordinators but are primarily carried out by specially trained personnel. In 1997, NOAA Fisheries contracted with the CCS in Provincetown, Massachusetts to respond to and provide training for large whale disentanglements.

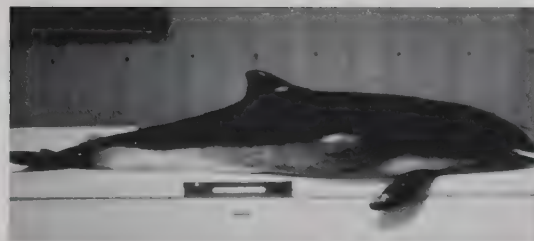
The primary disentanglement team is based in Provincetown, Massachusetts but is supported in the field by over 500 civilian and governmental voluntary first responders who are centered in seven strategic locations from Southeastern Canada to Florida. CCS provides training and equipment to these first responders whose duties range from communications support and logistics to actual field response and disentanglement. Training and equipment is updated annually network-wide. Additionally, disentanglement network members receive information about network protocols and techniques through a private website maintained by CCS. The website also provides up-to-date accounts of ongoing disentanglement events and detailed archived reports. In 1999, the disentanglement network received 12 confirmed reports of unique entangled whales off the U.S. Atlantic coast. Seven of these reports initially met NOAA Fisheries criteria for disentanglement response (i.e., the extent of the entanglement was non-life threatening).

Of those, three were determined by field assessment not to be candidates for disentanglement due to the minor nature of their entanglements. Two of those whales were subsequently documented to be free of gear. The remaining four whales assessed as serious entanglements (three humpbacks and right whale #1158) were all successfully disentangled by network personnel. Disentanglement network personnel also assisted the Canadian Whale Emergency Network in the Bay of Fundy to partially disentangle a fin whale (another fin whale was responded to and assessed as minor) and one right whale (#2710). A third right whale, #2030, ultimately died after extensive disentanglement attempts over a period of five weeks. The necropsy indicated that the entanglement was extremely extensive and no currently available disentanglement methods could have saved it.

In 2000, the disentanglement network received 19 confirmed reports of unique entangled live whales off the U.S. Atlantic coast. Eight of these reports met NOAA Fisheries criteria for disentanglement response. Network personnel attached telemetry buoys to the gear entangling two humpbacks off the Mid-Atlantic coast. Both of these whales lost their tags within days and their status is unknown, although it is likely that at least one of them has shed its gear. Of the remaining six, three were later documented free of gear, two were completely disentangled and one could not be disentangled and has not been resighted.

Reports that did not meet NOAA Fisheries criteria for disentanglement included three that were assessed in the field by network personnel as minor, non-life threatening entanglements. Eight other whales were lost by the reporting vessels and could not be relocated by network personnel. Available documentation indicated that intervention might be required for five of these whales if resighted; however, it was later confirmed that one (which was identified photographically) had shed its gear. Additionally, CCS disentanglement personnel assisted the Canadian Whale Emergency Network to disentangle a right whale (#2746) in the Bay of Fundy in 2000. The animal was tagged and ultimately disentangled by the CCS team near Georges Bank in May 2001.

In California, the stranding network has been responding to reports of entangled whales since the early 1980's. The disentanglement network consists of rescue teams from four rehabilitation facilities. In 1999, one unidentified whale, two live humpback whales, and three live gray whale entanglements were reported to the network. Rescue teams successfully disentangled one of the gray whales, but none of the other animals were relocated. In 2000, one live humpback whale and four live gray whale entanglements were reported to the network. The humpback whale was successfully disentangled, but none of the other animals were relocated.



dead harbor porpoise being photographed and prepared for necropsy: NOAA Fisheries

Unusual Marine Mammal Mortalities and Anomalous Events

1999

Increase in Harbor porpoise strandings along the Northeast and MidAtlantic coast of U.S.

A total of 223 harbor porpoises (*Phocoena phocoena*) stranded during 1999 from Maine to North Carolina. During that time, the Working Group was consulted, but it was not considered an unusual mortality event. Upon examination, a wide range of pathologies were found. No difference was determined when these findings were compared to findings in harbor porpoises that strand off the United Kingdom. Eighty-four carcasses were examined by the Smithsonian Institution Museum of Natural History. Many showed evidence of blunt force trauma such as bruising and rake marks. The rake marks on the carcasses matched tooth marks typical of several dolphin species including white-sided dolphins, common dolphins, and bottlenose dolphins. Human interaction was ruled out as a cause of death. Scientists are still investigating if the extremes in sea surface temperatures and currents may have contributed to food source competition between larger dolphins and smaller harbor porpoise, resulting in interspecific aggression.

"Unusual Mortality Event" of Bottlenose dolphins along the Florida Panhandle

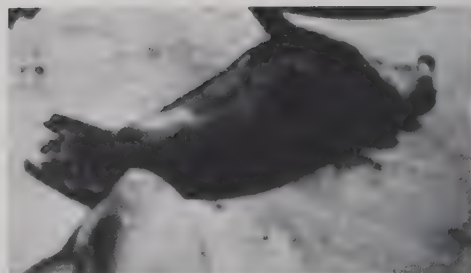
In the summer and winter of 1999, an increased number of stranded bottlenose dolphins (*Tursiops truncatus*) was reported along the panhandle of Florida. The event coincided with an algal bloom of *Gymnodinium breve*, the organism associated with red tides. As the bloom moved, the locations of the mortalities followed the movement. The distribution of this bloom was unusual in that blooms normally are not seen along the panhandle, but the currents during 1999 were different and blooms were moving north. Historically, there have been dolphin strandings associated with *Gymnodinium* blooms, but no definitive cause and effect has ever been determined. Brevetoxin was detected in dolphin tissues, but

no baseline data are available to determine whether or not the presence indicates brevetoxin as the cause of death. Other possible causes, such as viruses, have not been ruled out. An increased number of seabird, fish, and sea turtle mortalities were also reported.

2000

"Unusual Mortality Event" of Gray whales off the West coast of North America

In 1999, 273 gray whale (*Eschrichtius robustus*) strandings were documented along the West coast of North America. With this unusually high number of stranded whales, NOAA Fisheries initiated consultation with the Working Group on Marine Mammal Unusual Mortality Events in July 1999. Reports for each stranded whale were examined with particular attention to the date and location/region of the event and the sex and age class of the stranded animal. The Northernmost reported stranding was at the mouth of the Yukon River in Alaska, while the Southernmost was in Bahía de Banderas, Mexico. Most of the strandings occurred during the late spring and summer months, with the highest number reported in Mexican waters. The sex of the stranded animals was usually unknown because of the inaccessibility of the stranding site or advanced decomposition of the carcass. Of the 115 (42%) stranded animals of known sex: 76 (66%) were females and 39 (34%) were male. Age-class determination varied depending on the reporting source; when possible, age-class was assigned based on body length. Of the 133 (49%) reports in which age class or body length was identified: 51 (38%) were adults, 38 (29%) were juveniles/subadults, 30 (23%) were yearlings, and 14 (11%) were calves. Several factors may have contributed to the high number of gray whale strandings in 1999: starvation, chemical contaminants, natural toxins, fishery interactions, ship strikes, and wind and current effects. While the emaciated condition reported for many of the stranded whales supports the speculation that starvation may be the primary cause of the mortalities in 1999, there were no data to support or refute this contention. Given the expected natural mortality for a population in excess of 26,600 whales, the high number of mortalities in 1999 likely did not have a deleterious effect on the overall population.



California sea lion seized from domoic acid toxicity at a stranding rehabilitation facility. NOAA Fisheries file photo

"Unusual Mortality Event" of California sea lions off the coast of California

Between June 23 and December 1 2000, 184 California sea lions (*Zalophus californianus*) showing clinical signs of domoic acid toxicity were admitted to The Marine Mammal Center, a rehabilitation facility in Sausalito, California. Intense toxic algal blooms consisting of *Pseudo-nitzschia australis* were present off the California coast during this same time period similar to the 1998 domoic acid toxicity event (see 1998 MMPA Annual Report). Animals stranded from Santa Barbara county in the South, to Marin county in the North. The majority of the animals stranded in San Luis Obispo county on Oceano Dunes, Pismo Beach or around Morro Bay. Clinical signs in affected animals were mainly neurological, consisting of seizures, ataxia, nystagmus, scratching and muscle tremors. Despite treatment, 81 (44%) animals died or were euthanized. Most animals were adult females, although 18 sub-adult and adult males also stranded. No male yearlings, and only three female yearlings, were affected. Eighty-three of the sea lions (45%) stranded in the first two weeks of the event, with another cluster of animals stranding in the last week of July on Oceano Dunes, San Luis Obispo county. During the period that California sea lions stranded, California sea otters (*Enhydra lutris*) also stranded along the central California coast with signs of domoic acid toxicity.

This event differed from the 1998 event, in that there was not a close temporal or spatial association between observed domoic-acid producing algal blooms and sea lion morbidity and mortality. There was a pulse in numbers of affected sea lions in the first two weeks of the event, but there was then a steady number of affected sea lions, despite increases and decreases in the severity of blooms off the California coast. The reasons for this are unclear. As in the previous event, adult female California sea lions were the most severely affected age and sex class, although a few adult males were also affected in 2000. These animals became extremely difficult to manage when they improved clinically. Differences in time of the year between the two events also resulted

in differences in behavior of affected animals. Many of the female sea lions were in estrus when they recovered from signs of toxicity, and were very aggressive to humans. Thus, this event resulted in large numbers of animals in rehabilitation that were hard to handle by inexperienced volunteers.

"Unusual Mortality Event" of Harbor seals off Pt. Reyes, California

Between May and July 2000, approximately 23 harbor seals were found dead on their haulout/rookery at the Point Reyes National Seashore. The Working Group on Unusual Marine Mammal Mortality Events was consulted, and they deemed this as an official investigation. The animals appeared to be in good body condition and no external lesions were noted. Only three animals were fresh enough to sample and *Pseudomonas aeruginosa*, a bacterium, was isolated from all three. This bacterium does not typically cause primary pneumonia indicating that the animals may have been suffering other immunosuppressive disease. The investigation is still ongoing.

Mass Stranding of Beaked whales in the Bahamas

From March 15-16, 2000, 17 cetaceans stranded in the Bahamas. The strandings were clustered within a 36 hour period over three islands: Grand Bahama, Abaco, and North Eleuthra. During this time period, nine Cuvier's beaked whales (*Ziphius cavirostris*), three Blainville's beaked whales (*Mesoplodon densirostris*), two unidentified Ziphiidae beaked whales and two minke whales (*Balaenoptera acutorostrata*) were reported stranded. Seven of the animals died, and six of these animals were sampled or necropsied. The remaining live whales were pushed off the beach and/or escorted to deeper water. Initial gross and computerized tomography findings in the beaked whales showed that the animals were in good body condition, that there was no indication of debilitating infectious disease, ship strikes, blunt contact trauma, or fishery related injuries. Some of them had food remains in their stomachs and showed evidence of overheating, physiological shock and cardiovascular collapse which are common findings associated with stranding and are likely the immediate cause of death. Specimens from four of the beaked whales were not too decomposed for analysis and all showed auditory structural damage, specifically blood effusion around the ears. The pathologies of the two freshest animals were consistent with an auditory or impulse trauma event that may have compromised hearing or the vestibular system, but were not immediately or directly fatal. The minke whales were pushed off the shore alive but were not examined; therefore, no definitive statements can be made about the cause of their stranding.

A comprehensive investigation is underway to determine the cause of this mass stranding. Pathological analysis alone cannot differentiate between far-field blast effects and acoustic induced injury. However, the acoustic record of the geographical area shows that no blasts or low frequency pressure events occurred. Therefore, by deduction, the hemorrhages were acoustically induced. This stranding coincided with an offshore transit of the Northeast and Northwest Providence Channels by Navy ships using tactical sonars. From the way in which the strandings coincided with sonar use in both time and geography, the nature of the physiological effects, and the absence of any other sound source, it appears that tactical midrange sonar aboard U.S. Navy ships was the most plausible source of the acoustic trauma. While the precise causal mechanisms of tissue damage are unknown, available evidence points to acoustic or impulse trauma. Review of passive acoustic data ruled out volcanic eruptions, landslides, other seismic events, and explosive blasts.

The unusual extended use of Navy midrange tactical sonars operating in the area is the most plausible acoustic source. Research has not yet revealed the causal mechanisms by which sonar sound could have caused animals to strand or their tissues to be damaged. The stranding is believed to have resulted from a combination of factors including use of tactical sonars close to shore, and possibly species specific sensitivity to this type of sonar signal. The two agencies are openly cooperating in this investigation.

Marine Mammal Health and Stranding Response Program National Database System

In 2000, the MMHSRP laid the groundwork for establishing a National Marine Mammal Health and Stranding Response Database. Historically, each NOAA Fisheries regional stranding coordinator collects and stores stranding data using their own system where data entry standards are different and inconsistent. As a result, detecting national trends in real-time has been difficult. The purpose of this National Database is to consolidate regional stranding data and provide a central location on the Internet where Stranding Network Participants, NOAA Fisheries Regional Coordinators, NOAA Fisheries National Stranding Coordinators, members of the Working Group on Unusual Marine Mammal Mortality Events, marine mammal researchers and other government agencies can obtain various levels of stranding data. The database will provide: (1) automation of functions that are currently being performed manually by the NOAA Fisheries Regional Stranding Coordinators; (2) accessibility to real-time stranding data; and (3) interface with other database systems (i.e., Smithsonian Institutes Cetacean Database

System and National Institute of Standards and Technology Marine Mammal Tissue Bank). The project will consist of multiple phases of development, design, testing and implementation. A Software Development User Committee will be formed in 2001 to provide comments and suggestions regarding the system requirements. The database will be developed in HTML and Oracle and reside at NOAA Fisheries Headquarters in Silver Spring, Maryland. Stranding data will have remote and global accessibility via a web-based application.

National Marine Mammal Tissue Bank

Congress established the National Marine Mammal Tissue Bank in 1992 under the MMHSRP (Title IV of the MMPA). This bank provides a long-term archive for marine mammal tissues that scientists can use in the future to measure potentially harmful chemicals.

The Tissue Bank is managed by the National Institute of Standards and Technology (NIST) in Charleston, South Carolina and Gaithersburg, Maryland. NIST sets the standards of collection, banking and analysis for the program. Only tissues that have been collected under strict protocols can be submitted into the Tissue Bank.

Liver, kidney and blubber samples are collected from marine mammals that are harvested in legal subsistence hunts, by-caught in fisheries, captured as part of a capture-release study or stranded. The sources of marine mammal tissues in 1999 and 2000 came from many partners, including:

- Other Federal agencies (USFWS, National Ocean Service, U.S. National Geological Service and Alaska Biological Science Center)
- Non Federal agencies (Alaska North Slope Borough, Marine Mammal Center, New England Aquarium, University of North Carolina at Wilmington, Duke Marine Laboratory, Kewarek Inc.- Natural Resources Division and the University of Alaska in Fairbanks).

During 1999-2000, 553 specimens were collected from 187 animals. Two new species were added to the Tissue Bank- Cuvier's beaked whale (*Ziphius cavirostris*) and Atlantic spotted dolphin (*Stenella frontalis*). Appendix B, Table 4 outlines a list of species, location and date of collection. Currently, the Tissue Bank inventory contains 1,722 individual animals representing 29 species.

NIST has also developed a quality assurance program as part of the Tissue Bank. The goals of the quality assurance program are to maintain the quality and consistency of the data coming from analysis of Tissue Bank specimens. This program consists of several components, including:

- Protocols for preparing, analyzing and distributing control tissues
- Setting standards to measure data accuracy
- Developing standard reference materials



Marine Mammal Tissue Bank:
National Institute of Standards and Technology

permits and public display

The Marine Mammal Protection Act (MMPA) establishes a moratorium on the "taking" of marine mammals by any person in U.S. waters and by U.S. citizens in international waters, as well as a moratorium on the importing of marine mammals and marine mammal products into the U.S. However, the MMPA authorizes permits and/or authorizations for the following activities:

- scientific research
- enhancing the survival or recovery of a marine mammal species or stock
- commercial/educational photography
- first-time import for public display or capture of wild marine mammals for public display
- incidental take during commercial fisheries
- incidental take during non-fishery activities

NOAA Fisheries maintains authority over whales, dolphins, porpoises, seals and sea lions. The U.S. Fish and Wildlife Service maintains authority for walrus, polar bears, sea otters, and manatees. Some species of marine mammals are also protected by the Endangered Species Act (ESA) and the Fur Seal Act (FSA) which can mandate additional restrictions.

During 1999 and 2000, of the number of applications received, NOAA Fisheries issued 130 new permit actions for activities related to scientific research, enhancing the survival or recovery of a marine mammal species or stock, commercial/educational photography, and first-time import for public display. (Authorizations for incidental take during commercial fisheries and non-fishery activities are covered in Chapters 5 and 6, respectively.) Permit actions

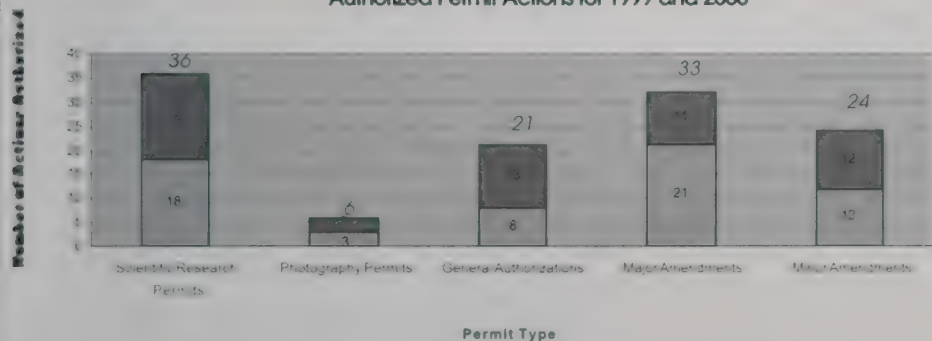
include issuance of a new permit and amendments to existing permits. A major amendment is subject to the same notice, review and comment procedures as a permit application. Minor amendments and authorizations, such as permit extensions of under 12 months or changes in research personnel, do not require a public comment period.

During 1999-2000, NOAA Fisheries improved sections of its program to promote more efficient and timely processing of permits. Some of these efforts included: (1) increase in staff; (2) revisions to application requirements; (3) development of an internal permit database; and (4) posting of application materials and relevant information to the web at:

http://www.nmfs.noaa.gov/prot_res/PR1/Permits/pr1permits_types.html.

Future efforts planned in 2001 include: (1) developing cumulative impact assessments of research on endangered species of marine mammals; (2) stricter enforcement of timely annual and final reports, as well as submission of publications from permitted research; (3) further development of internal database to assist in more efficient permit processing; (4) use of electronic applications for faster distribution and review period; and (5) increased outreach on permitting issues. NOAA Fisheries is also taking measures to address the likely increase in permit-related workload due to the announcement of increased Congressional appropriations, including the Steller Sea Lion Research Initiative.

Authorized Permit Actions for 1999 and 2000



Public Display (first-time import)

No applications were received for collection of marine mammals from the wild. One permit application for first-time import was submitted in late 2000 and a determination is expected in early 2001.

■ 2000

■ 1999

Permit Regulations

A number of existing regulations are relevant to the processing of NOAA Fisheries marine mammal permits. On May 10, 1996, NOAA Fisheries published a Final Rule in the *Federal Register* that amended the regulations for permits under the MMPA, the ESA and the FSA (61 FR 53320). This rule updated and consolidated the regulations for special exception permits and established basic permit requirements applicable to all permits to take, import, and export marine mammals for purposes of scientific research and enhancement, photography, and public display under the MMPA. It also provided additional permit criteria specific to scientific research and enhancement only and established administrative procedures for determining the releasability or non-releasability of stranded marine mammals. However, this Final Rule did not include the additional requirements specific to photography or public display established by the 1994 MMPA amendments.

Over the next few years, NOAA Fisheries plans to publish the following Proposed and Final Rules related to permitting:

- Proposed Rule for public display, including marine mammal transfer and inventory reporting requirements (see further discussion in the public display section of this chapter)
- Proposed Rule for commercial/educational photography permits
- Final Rule for General Authorizations for Scientific Research (Interim Final Rule was published on October 3, 1994 (59 FR 50372))

General Authorization for Scientific Research

In 1994, the MMPA was amended to provide a more streamlined approach for research involving only Level B Harassment of non-listed marine mammals (*i.e.*, those species not listed as endangered or threatened under the ESA). Under the General Authorization of Scientific Research (GA), researchers submit a Letter of Intent (LOI) containing detailed information so that NOAA Fisheries can accurately determine whether or not the research is *bona fide* and that the impacts of the activities are limited to Level B Harassment only. Should it be determined that the project is eligible, no public comment period is necessary. Rather, the researcher receives a Letter of Confirmation (LOC) that their research activities are covered under the GA. An Interim Final Rule was published on October 3, 1994 (59 FR 50372) to cover the GA. NOAA Fisheries is currently working to assess the GA program and expects to publish a final rule in the future.

Since the inception of the GA in 1994, 91 LOIs have been reviewed by NOAA Fisheries with 85% of those



permitted researchers observe killer whale behavior: NOAA Fisheries file photo

issued a LOC and 15% returned as incomplete, not *bona fide*, or needing a scientific research permit to cover Level A harassment. In 1999 and 2000, 21 of the 91 LOIs were reviewed. Of the LOCs issued, 74% cover research on cetaceans, mainly bottlenose dolphins, and 26% cover research on pinnipeds, mainly California sea lions and harbor seals. The vast majority of LOCs cover research methodologies involving photo-identification and behavioral observation with a minority focusing on aerial surveys and acoustic recordings. Clearly, the GA program has been successful in providing a streamlined approach to research involving Level B harassment of non-listed marine mammals.

Photography Permits

Similar to the restrictions that apply to the GA, the 1994 MMPA amendments also provided new authority to issue permits for educational and commercial photography involving only Level B Harassment of non-listed marine mammals. After the 1994 amendments, NOAA Fisheries instituted a pilot program for commercial/educational photography permits in order to determine the scope of the program. Pilot photography permits are processed according to the statutory criteria of scientific research permits, including a 30-day public comment period. Currently, NOAA Fisheries limits the authorization of photographic activities to up to two years, provides authorization for specific projects and requires a report on the activity and its effects on the marine mammals within 60 days of the completion of the photographic work. The reports will assist NOAA Fisheries in determining if these activities are unnecessarily increasing harassment of the animals and what conditions may be needed in the final program. NOAA Fisheries expects to publish a Proposed Rule on these permits in 2002 or 2003.

Public Display

The 1994 MMPA amendments changed NOAA Fisheries' jurisdiction over captive care and maintenance of marine mammals held for public display, placing it under the exclusive jurisdiction of the Animal

Welfare Act (AWA) administered by the Department of Agriculture, Animal and Plant Health Inspection Service (USDA/APHIS). However, the MMPA requires that NOAA Fisheries maintain certain activities, such as the captive Marine Mammal Inventory Database, regulate first time imports of captive marine mammals and collections from the wild, manage the retention of stranded marine mammals, and ensure that U.S.-based captive marine mammals, and their progeny, are afforded comparable protection after export abroad.

Table 1: Non-Releasability Determinations by Species in 1999 and 2000

Date	Num.	Species
1999	1	Bottlenose dolphin
	10	California sea lions
	4	Harbor seals
	1	Pantropical spotted dolphin
2000	1	Bottlenose dolphin

Retention of Stranded Marine Mammals

Beached or stranded marine mammals taken under the authority of section 109(h) of the MMPA may be held for the purposes of rehabilitation until:

- the animal is returned to its natural habitat
- NOAA Fisheries concurs with a determination by the attending veterinarian that it is not feasible to return the animal to its natural habitat and permanent holding is authorized by NOAA Fisheries
- NOAA Fisheries authorizes the permanent retention of the animal as a substitute for the capture of one of the same species from the wild, even though the attending veterinarian in consultation with NOAA Fisheries determines that the animal is releasable.

The permanent retention of a rehabilitated, beached or stranded marine mammal must be authorized by NOAA Fisheries, in accordance with applicable MMPA requirements, before a non-releasable animal may be retained by the rehabilitating facility or transferred to another facility for public display purposes. Additionally, the receiving or retaining facility must meet the three public display criteria (see Marine Mammal Inventory). During 1999 and 2000, 16 marine mammals were determined non-releasable and retained by domestic facilities for public display (see Table 1 above).

A permit is required to retain or obtain rehabilitated beached or stranded marine mammals for purposes of scientific research, enhancing the survival or recovery of a marine mammal species or stocks or to retain

releasable marine mammals for public display in lieu of a capture. No applications for a permit to retain a releasable marine mammal were submitted to NOAA Fisheries during the 1999-2000 reporting period.

Marine Mammal Inventory

The 1994 amendments to the MMPA require NOAA Fisheries to maintain an inventory of marine mammals held in captivity in the U.S. The marine mammal inventory database included 2,146 living marine mammals at the close of 1999 and 2,230 living marine mammals at the end of 2000 (compared to 2,229 living marine mammals at the close of 1998). This inventory includes animal-specific information such as animal identification, species, sex, estimated or actual birth date, date of acquisition or disposition by the holder, source of acquisition, and name of receiver if transferred. Section 104(c)(2)(E) of the MMPA requires a 15-day notification prior to the transfer or transport of any marine mammal held for public display. Current policies include reporting births and deaths and the verification of transfers/transport within 30 days. Presentations to members of the public display industry regarding reporting requirements (inventory changes and transfers/transport) were given at the annual conference of the Zoo Registrars Association and the annual conference of the American Zoos and Aquarium Association.

Marine mammals may be held in captivity for scientific research, enhancement, or public display. Scientific research and enhancement activities require the issuance of a permit. Section 104(c)(2)(A) of the MMPA allows for the public display of marine mammals within the U.S. provided that the holder meet all of the following criteria:

- offer a program of education or conservation that is based on professionally recognized standards of the public display community
- be registered or hold a license under the Animal Welfare Act (AWA)
- maintain facilities for the public display of marine mammals that are open to the public on a regularly scheduled basis and not limited or restricted in access except for admission fees.

To ensure compliance with the statutory requirements, and paralleling efforts to reduce and streamline notification requirements and reporting necessities, NOAA Fisheries is continuing to develop a Cooperative Agreement with the International Species Information System (ISIS) to maintain the captive marine mammal inventory database. ISIS is an international non-profit organization that manages a similar database and information system for wild animal species held in captivity, including marine mammals. Under the

cooperative agreement, ISIS will manage the captive marine mammal inventory as part of the central ISIS database system. The major objectives of this agreement are to eliminate current duplication of reporting and improve the long-term efficiency and quality of the marine mammal database. The ISIS transition will be outlined in the public display Proposed Rule scheduled for 2001. Holders will continue to submit reports to NOAA Fisheries until the Final Rule for public display is published and they are notified of the transition.

Exports of Captive Marine Mammals

Marine mammals may be exported for public display purposes as long as the foreign receiver meets requirements comparable to those a U.S. receiver must meet. Because foreign facilities are not subject to the licensing or registration requirements under the AWA, it is only through the MMPA's comparability requirement that adequate care standards for marine mammals transported to foreign facilities can be assured. Following a policy established in 1975, NOAA Fisheries continues to require the foreign receiver to obtain from the government agency with jurisdiction over the facility a certification that the facility meets standards comparable to the AWA and MMPA and includes a statement that the foreign facility will afford comity to NOAA Fisheries efforts to enforce the MMPA and AWA for these U.S. animals abroad. The comity agreement remains a valuable and reasonable diplomatic tool for the continued protection and welfare of live marine mammals exported from the U.S.

In 1997, the NOAA Office of General Counsel reviewed the legal basis for the NOAA Fisheries policy and found that the comity requirement is reasonable within the context of the MMPA. This policy will be reflected in the Proposed Rule for public display and made available for comment. During 1999 and 2000, 25 animals were exported (the same six animals are sent seasonally to Canada's Wonderland, see Table 2 below). As part of the export arrangements, an inventory of U.S.-source animals is maintained by NOAA Fisheries. (See Table 3 below for a listing of captive animals exported from the U.S. since 1995.)

**Table 3. Captive Animals Exported Since 1995.
(under Department of Commerce jurisdiction)**

Since 1995, 115 captive marine mammals have been exported from U.S.-based facilities to 14 different foreign facilities. This includes:

- 1 Killer whale
- 46 Bottlenose dolphins
- 51 California sea lions
- 12 Harbor seals
- 2 Northern elephant seals
- 3 South American sea lions**

** South American sea lions were exported for traveling show and then re-imported.

**Table 2: Captive Marine Mammals of U.S.-Source Exported in 1999 and 2000
(for species under Department of Commerce jurisdiction)**

Date	Num.	Species	Source	Destination
02/26/99	2	California sea lions	Marine Animal Productions	JV China, Beijing Aquarium
04/12/99	5	California sea lions	Marine Animal Productions	Canada's Wonderland (Ontario)
	1	Harbor seal		
04/19/00	5	California sea lions	Marine Animal Productions	Canada's Wonderland (Ontario)
	1	Harbor seal		
06/24/00	9	California sea lions	Sea World, Inc.	Ocean Park Corp. (Hong Kong)
	8	Harbor seals		

Keiko, the Killer Whale

Keiko, the killer whale from the "Free Willy" movies, was exported from the Oregon Coast Aquarium to Iceland on September 8, 1998 for the purpose of public display with the understanding that a scientific research permit would be necessary prior to attempting to release Keiko to the wild. Ocean Futures Society, formerly the Free Willy/Keiko Foundation, submitted an application for a scientific research permit in May of 2000 to the Animal Welfare Board in Iceland. NOAA Fisheries, as well as other government agencies and independent experts, received a copy of the research protocol for review. Iceland issued a permit for Keiko's release on June 9, 2000. Notification was given to NOAA Fisheries on December 22, 2000, that the reintroduction effort was to stop for the year due to the onset of winter weather and that the project would be continued in 2001.

Public Display Regulations

NOAA Fisheries continued to prepare the Proposed Rule implementing the 1994 amendments to the MMPA regarding marine mammals held captive for the purpose of public display and clarifying the public display requirements for acquisition and disposition of marine mammals. The purpose of this Proposed Rule will be to codify current policies of inventory reporting including acquisition, disposition, exportation, transfers/transport and the ISIS transition. The Proposed Rule will also amend the regulations governing the taking and importation of marine mammals to clarify the requirements for exports of animals, allow the opportunity for public comment on the acquisition of an unreleasable beached or stranded animal by a facility that has not previously held marine mammals, and to clarify the need for a permit to retain a releasable beached or stranded animal. In addition to the above, this Proposed Rule will establish a means for identifying parts taken from public display animals and authorize the importation of parts for medical examination. The Proposed Rule is expected to be published in 2002.

Captive Care of Marine Mammals

When the MMPA was amended in 1994, NOAA Fisheries' role in specifying care and maintenance standards for captive marine mammals was eliminated. This responsibility was transferred to the U.S. Department of Agriculture's Animal and Plant Health Inspection Service under the Animal Welfare Act. The revised Memorandum of Agreement (MOA) of 1998 defined responsibilities under the MMPA and AWA for the captive care of marine mammals. NOAA Fisheries, APHIS, the USFWS and the Marine Mammal Commission conduct monthly meetings to facilitate inter-agency cooperation and communication regarding the captive care of marine mammals.

Public Display Permit Applications

One permit application for public display purposes was submitted during 1999 and 2000. Sea World, Inc. requested a permit to import of one killer whale (*Orcinus orca*), from the Vancouver Aquarium, Vancouver, B.C., Canada to Sea World in San Diego, California. The application was determined complete in November, 2000 and published for public comment in the *Federal Register*. The comment period will close on January 5, 2001.

Closures of Marine Parks

NOAA Fisheries was notified of an emergency situation involving the demolition of the American Wilderness Experience in Ontario, California, and the necessary relocation of three harbor seals in May 2000. American Wilderness Experience (operated by Ogden Entertainment, Inc.) informed NOAA Fisheries of the situation one week prior to the scheduled start of demolition activities. NOAA Fisheries waived the necessary 15 day transfer/transport notification requirement for the health and safety of the animals involved. Arrangements were made with the Orange County Zoo, Orange, California, to take custody of the animals. The harbor seals are currently being maintained at Sea World of California, San Diego, California, pending the completion of the Orange County Zoo exhibit.



Harbor seal being moved from American Wilderness Experience to Sea World of California.

Notable Enforcement Actions Related to Permits

Hawaiian Whale Watching and Research Operation Assessed \$13,000 Civil Penalty for Permit Violations

In April 1999, NOAA charged the Pacific Whale Foundation (PWF), of Kehei, Hawaii, with seven civil violations under the MMPA and ESA. NOAA assessed a civil penalty of \$13,000 against PWF in a Notice of a Violation and Assessment (NOVA) for actions that occurred between January and May of 1998.

The charges included one count of failing to allow inspection of research records by providing a federal agent with falsified documents; one count of unauthorized approaches to within 100 yards of humpback whales; three counts of failing to include various data resulting from research efforts in annual reports; one count of allowing unauthorized personnel to operate a vessel during research activities; and one count of failing to keep complete and accurate records of research activities. The case resulted from an investigation into PWF's research activities during the 1998 whale research season after the agency received information that PWF had begun its research without the required permit authorizations.

In May 2000, PWF signed a settlement agreement with NOAA for civil violations under the MMPA and ESA. Under the terms of the settlement agreement: (1) PWF admitted to two charges and paid a \$5,000 fine; (2) NOAA dismissed one charge of unauthorized approaches of humpback whales; and (3) NOAA issued a single written warning for four alleged charges.

Sugarloaf Dolphin Sanctuary Case

In June 1999, former "Flipper" dolphin trainer Richard O'Barry, and his associate Lloyd A. Good III, were found guilty of violating the MMPA for releasing two captive dolphins off the Florida coast in May 1996 that were not prepared to survive in the wild and sustained life-threatening injuries. O'Barry, Good, and their respective corporate entities were ordered to pay civil penalties totaling \$59,500.

Judge Peter A. Fitzpatrick, a U.S. Administrative Law Judge, fined O'Barry, Good, Sugarloaf Dolphin Sanctuary Inc., and the Dolphin Project Inc. with civil penalties of \$40,000, the maximum penalty provided by law, for illegally "taking" by harassment and illegally transporting each of the dolphins. The Sugarloaf Dolphin Sanctuary was fined an additional \$19,500 for failing to notify NOAA Fisheries prior to the transport of the dolphins.

The two dolphins had been collected from the wild off the coast of Mississippi during the 1980's and were in captivity for almost 10 years. They were initially in the

U.S. Navy's marine mammal program, and were transferred to the Sugarloaf Dolphin Sanctuary in 1994 as part of a project that intended to return them to the wild. Although the Sugarloaf Dolphin Sanctuary obtained the necessary authorizations to have the dolphins on public display, a scientific research permit was never obtained or requested prior to the release.

O'Barry and Good released the two dolphins, named "Luther" and "Buck," approximately six miles off the coast of Key West, Florida, on May 23, 1996. The day after the dolphins were released, Luther appeared in a congested Key West marina with deep lacerations, approaching people, and begging for food. Buck, found two weeks after his release over 40 miles away, had deep lacerations and was emaciated.

NOAA Fisheries determined that the dolphins were in need of medical attention. With the help of members of the Southeast marine mammal stranding network, the USN, USCG and Florida Marine Patrol, NOAA Fisheries successfully rescued the animals and provided veterinary care.

Releasing captive marine mammals to the wild can be hazardous to both the released animal and wild marine mammal populations, if conducted improperly and without appropriate safeguards. Issues of concern include: (1) the ability of released animals to adequately forage and defend themselves from predators; (2) any behavioral patterns developed in captivity that could affect the social behavior of wild animals, as well as the social integration of the released animals; and (3) disease transmission and/or unwanted genetic exchange between released animals and wild stocks. The MMPA requires and NOAA Fisheries maintains that any marine mammal release should be conducted with a MMPA scientific research permit to protect the health and welfare of marine mammals. The MMPA scientific research permit is required to ensure that humane protocols be in place that maximize the release's chance of success, and provide for long-term follow-up monitoring and emergency contingency plans in case it is necessary to rescue a released animal.

small take authorizations

1989-2000

Since 1982, the Marine Mammal Protection Act (MMPA) has provided a mechanism for authorizing, upon request, the incidental (not intentional) taking of small numbers of marine mammals by U.S. citizens who engage in a specified, lawful activity (other than commercial fishing) for periods not to exceed five years per authorization. Before issuing regulations that would allow the harassment, injury or mortality of marine mammals under this provision of the MMPA, NOAA Fisheries must determine that the total of such taking will not have more than a negligible impact on the species requested to be taken and will not have an unmitigable adverse impact on the availability of the species for Alaskan subsistence hunting. Regulations issued in 1982, and amended in 1989 to allow the taking of threatened and endangered marine mammal species, require the applicant to mitigate the taking to the lowest level practicable, to monitor the taking of marine mammals during the activity and to report the results to NOAA Fisheries.

In 1999 and 2000, several activities had multi-year authorizations to incidentally take marine mammals under this provision of the MMPA. The authorized activities were: (1) the taking of bottlenose and spotted dolphins incidental to the removal of oil and gas structures in the Gulf of Mexico; (2) the taking of a number of species of marine mammals during a U.S. Navy (USN) ship shock trial for the USS SEAWOLF submarine off Jacksonville, Florida; (3) the taking of several species of seals at the Seabrook Nuclear Power Station, Seabrook, New Hampshire; (4) the taking of seals during winter oil exploration in the Beaufort Sea, Alaska; and (5) the taking of seals and sea lions incidental to missile and rocket launches from Vandenberg Air Force Base, California. In May, 2000, a final authorization to take marine mammals was issued for an oil and gas development facility in the U.S. Beaufort Sea. The Letter of Authorization (LOA) was issued for this activity limited to construction of the facility with an LOA for oil production delayed until next year. In November, 2000, the authorization to take dolphins incidental to removal of oil rigs in the Gulf of Mexico expired. Plans are underway to renew these regulations.

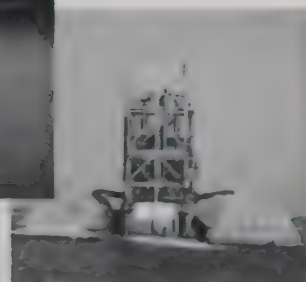
NOAA Fisheries has also received several applications for taking marine mammals under the MMPA that were being processed at the end of 2000. These included: (1) a ship shock trial for the USS WINSTON CHURCHILL, (2) the deployment of the USN's SURTASS LFA sonar, (3) the operation of the Acoustic Thermometry of Ocean Climate (ATOC) source by the North Pacific Acoustic Laboratory; and (4) the U.S. Coast Guard's application for ship strikes of large whales off the U.S. East coast.

Incidental Harassment Authorization Program

Section 101(a)(5) of the MMPA was amended in 1994 (Public Law 103-238) to establish an expedited process by which citizens of the U.S. can apply for an authorization to incidentally take small numbers of marine mammals by harassment. It established specific time limits for processing the application, for public notice and comment on the application and for issuance or denial of the authorization.

On April 10, 1996 (61 FR 15884), NOAA Fisheries published an Interim Rule to amend the small take regulations to implement the process for issuing harassment authorizations without the need to issue specific regulations governing the taking of marine mammals for each and every activity. This rule sets forth the process for applying for and obtaining an authorization; the time limits set by the statute for NOAA Fisheries review, publication, and public notice and comment on any applications for authorization that would be granted; and the requirements for submission of a plan of cooperation and for scientific peer review of an applicant's monitoring plans (if that activity may affect the availability of a species or stock of marine mammal for taking for subsistence purposes).

Under this incidental harassment provision in the MMPA, during 1999 and 2000, NOAA Fisheries issued authorizations to the following activities: (1) seismic surveys in the U.S. Beaufort Sea, Alaska; (2) seismic retrofit and attenuation tests for two bridges in San Francisco Bay, California; (3) conducting water intrusion and earthquake hazard studies off Southern California; and (4) oil exploration drilling in the U.S. Beaufort Sea.



interaction with commercial fisheries

The Marine Mammal Protection Act (MMPA) was amended by Congress in 1994 to establish a long-term regime for governing interactions between marine mammals and commercial fisheries. The 1994 amendments to the MMPA established section 118, which contains the goal to reduce incidental mortality or serious injury of marine mammals occurring in the course of commercial fishing operations to insignificant levels approaching a zero mortality and serious injury rate within seven years. Final regulations implementing this program were published in 1995 after considerable public involvement and comment (60 FR 45086, August 30, 1995).

The Annual List of Fisheries

NOAA Fisheries must classify all U.S. commercial fisheries into Category I, II or III, based on whether the fishery has a frequent, occasional, or remote likelihood of causing incidental mortality and/or serious injury of marine mammals, respectively. NOAA Fisheries defined Category I, II, and III fisheries based on the annual level of incidental mortality and serious injury of marine mammals relative to each stock's calculated Potential Biological Removal (PBR) level.

Definitions of Category I, II, and III Commercial Fisheries

The fishery classification criteria consists of a two-tiered, stock-specific approach that first addresses the total impact of all fisheries on each marine mammal stock, and then addresses the impact of individual fisheries on each stock. NOAA Fisheries uses the following decision process when assessing each fishery with data available:

Tier 1: Tier 1 considers the cumulative fishery mortality and serious injury on a particular stock. If the total annual mortality and serious injury across all fisheries that interact with a stock is less than or equal to 10% of the PBR level of that stock, then all fisheries interacting with this stock are placed in Category III. Otherwise, these fisheries are subject to Tier 2 standards.

Tier 2: Tier 2 considers fishery-specific mortality for a particular stock. Fisheries under Tier 2 fall into one of three categories.

Category I: The total annual mortality and serious injury of a stock in a given fishery is greater than or equal to 50 percent of the calculated PBR level of that stock.



killer whales and fishing vessel
NOAA Fisheries file photo

Category II: The total annual mortality and serious injury of a stock in a given fishery is greater than 1% and less than 50% of the PBR level of that stock.

Category III: The total annual mortality and serious injury of a stock in a given fishery is less than or equal to 1% of the PBR level for that stock.

Information Used to Classify Commercial Fisheries

NOAA Fisheries bases its classification of commercial fisheries on a variety of information. The best source of information about the level of fishery-specific incidental marine mammal serious injury and mortality is a fishery observer program. Thus, if data from an observer program are available, NOAA Fisheries will use this information to classify the fishery. However, because only some commercial fisheries have been monitored by observer programs, other information may also be used to classify fisheries. If data from fishery observer programs are not available, NOAA Fisheries may also use the following sources of information to classify fisheries: fishing techniques, gear used, methods used to deter marine mammals, target species, seasons and areas fished, qualitative data from logbooks or fisher reports, stranding data, and the species and distribution of marine mammals in the area.

Publication of the List of Fisheries

NOAA Fisheries must publish an annual List of Fisheries (LOF). Proposed changes to the LOF for the upcoming year are scheduled to be published in the Federal Register during the summer of each year for public comment. Public comments received are considered during development of the final LOF, which is ideally published each fall. For each fishery, the LOF must include the number of vessels or participants in that fishery and list which marine mammal stocks or species interact with that fishery. Because the focus of the reporting requirement in the MMPA is on "incidental mortality and injury" to marine mammals, any marine mammal species that has been injured or killed in a particular commercial fishery is included in the LOF.

Definitions of U.S. Commercial Fisheries in the LOF

Fisheries in the LOF are defined by the broad or specific geographic area in which they operate, the gear type used, the method used, and the target species. NOAA Fisheries will, whenever possible, define fisheries in a manner which is consistent with federal, regional, and state fishery management plans or programs, in order to:

- Reduce confusion caused by having multiple names for the same fishery
- Provide a "common name" for a fishery that can be used by NOAA Fisheries, fishers, and state and regional fishery managers
- Allow NOAA Fisheries to more easily collect information on fishery statistics, such as the number of participants, target species landed, length of fishing season, etc. and
- Help NOAA Fisheries meet its statutory obligations by coordinating registration under the MMPA with existing fishery management programs.

In the future, NOAA Fisheries may have sufficient information to subdivide certain commercial fisheries into components that have different levels of impact to marine mammal stocks. This approach may help NOAA Fisheries focus management actions on certain "hot spots" where there are documented high impacts to marine mammal stocks. NOAA Fisheries will continue to seek public comment on the optimum way to define commercial fisheries and will modify the LOF as necessary to reflect changes in U.S. fisheries.

2000 List of Fisheries

The 2000 LOF was published on April 26, 2000 (65 FR 24448). There were no changes from the 1999 LOF. A table providing a list of all U.S. commercial fisheries was published in the *Federal Register* notice announcing the LOF for 2000. A list of the Category I and II commercial fisheries from the 2001 LOF which can be found in Appendix C, Table 1.

2001 List of Fisheries

The proposed LOF for 2001 is expected to be final in the summer of 2001. Information on the 2001 LOF and other annual LOF can be found at the following website:

http://nmfs.noaa.gov/prot_res/PR2/fisheries_interactions/list_of_fisheries.htm

Monitoring Programs

NOAA Fisheries' observer programs are one method used to determine the impacts that U.S. commercial fisheries have on marine mammal stocks and to place fisheries in the appropriate LOF Category. The objectives of

observer programs are to obtain statistically reliable estimates of incidental mortality and serious injury of marine mammals in commercial fisheries, to determine the reliability of fishers' reports, and to identify changes in fishing methods or technology that may decrease incidental marine mammal mortality and serious injury.

In 1999, NOAA Fisheries established a National Observer Program, overseen by the Office of Science and Technology (OST), to provide a formal mechanism for NOAA Fisheries to address observer issues of national importance in a coordinated and consistent manner. In recognition of the value of observer data to the goals of the marine mammal program, the NOAA Fisheries Office of Protected Resources (OPR) has provided funding derived from the MMPA Implementation PPA for marine mammal observer programs in several different fisheries since 1990. Additionally, OPR permanently transferred \$150,000 to the base funds of the NOAA Fisheries Office of Science and Technology to support the National Observer Program. Staff from OPR have active members of the Advisory Team to the National Observer Program.

Eight of the 30 Category I and II fisheries were observed for marine mammal interactions with MMPA funds in 2000:

- Cook Inlet salmon set and drift gillnet
- Northeast multispecies sink gillnet
- Atlantic squid/mackerel/butterfish trawl fishery
- Mid-Atlantic coastal gillnet
- Southeast Atlantic shark drift gillnet/ strike net
- Atlantic Ocean/Caribbean/Gulf of Mexico large pelagics longline
- California/Oregon thresher shark/ swordfish drift gillnet
- California angel shark/halibut and other species large mesh (>3.5 inch) set gillnet

Observer data are summarized in the Stock Assessment Reports. (See Chapter 1)

Registration Requirements for Commercial Fishers

Commercial fishers who participate in Category I or II fisheries must register in the Marine Mammal Authorization Program (MMAP). Registration under the MMAP is administered by NOAA Fisheries Regional Offices.

The MMPA states that NOAA Fisheries should, to the maximum extent practicable, integrate registration of participants in Category I or II fisheries under the MMPA with existing state or federal permit systems. Between 1995 and 1998, NOAA Fisheries integrated registration in the MMAP with pre-existing state and federal fisheries permit systems for most fisheries in Category I and II. Over the past two years, these efforts have resulted in reduced paperwork for both NOAA Fisheries and the

estimated 22,500 commercial fishers that fall under the requirements of the MMAP. Fishers operating in integrated fisheries do not need to register separately under the MMAP or pay a \$25 federal registration fee.

If registration of a specific fishery has not been integrated, owners of vessels or gear operating in that fishery must register with NOAA Fisheries Regional Office in which their fishery operates. NOAA Fisheries Regional Offices annually send renewal packets to participants in Category I and II fisheries that have previously registered with NOAA Fisheries; however, it is the responsibility of fishers to ensure that registration or renewal forms are submitted to NOAA Fisheries at least 30 days in advance of fishing. If fishers have not received a renewal packet by January 1 or are registering for the first time, requests for registration forms should be sent to the appropriate NOAA Fisheries Regional Office. NOAA Fisheries will send the vessel owner an Authorization Certificate, a program decal, and reporting forms within 30 days of receiving the registration form and application fee.

Reporting Requirements for Commercial Fishers

All vessel owners or operators or fishers (in the case of non-vessel fisheries) in Category I, II, or III fisheries must report all mortalities or injuries of marine mammals that occur incidental to their commercial fishing operations. In 1999, NOAA Fisheries received 78 reports of injuries and/or mortalities from commercial fishing vessel operators and 79 reports for 2000. Appendix C summarizes self-reported injuries and mortalities by species and by fishery for 1999 and 2000.

Take Reduction Teams and Take Reduction Plans

Requirements for the Development and Implementation of Take Reduction Plans

Section 118(f) of the MMPA requires that NOAA Fisheries develop and implement take reduction plans designed to assist in the recovery or prevent the depletion of strategic marine mammal stocks (see Chapter 1 - Stock Assessments) that interact with Category I or II fisheries. The immediate goal of a take reduction plan is to reduce, within six months of its implementation, the mortality and serious injury of strategic stocks incidentally taken in the course of commercial fishing operations to below the PBR levels established for those stocks. The long-term goal of a plan is to reduce, within five years of its implementation, the incidental mortality and serious injury of all marine mammals taken in commercial fishing operations to insignificant levels approaching a zero mortality and serious injury rate, taking into account the economics of the fishery, the available existing technology, and existing state or regional management plans. More information on take reduction teams and implementation of take reduction plans can be found in the 1997 MMPA Annual Report.

Recognizing that insufficient resources existed for the development of take reduction plans for all stocks affected by commercial fisheries, NOAA Fisheries followed the guidance in section 118(f)(3) of the MMPA in prioritizing the establishment of take reduction teams to address stocks of greatest concern. As a result, NOAA fisheries initially formed five Take Reduction Teams (TRTs):

- Gulf of Maine Harbor Porpoise TRT
- Mid-Atlantic Harbor Porpoise TRT
- Atlantic Offshore Cetacean TRT
- Atlantic Large Whale TRT
- Pacific Offshore Cetacean TRT

NOAA Fisheries plans to convene the bottlenose dolphin TRT in the summer of 2001 to address incidental takes of the Western North Atlantic coastal stock of bottlenose dolphin (*Tursiops truncatus*) in a variety of Atlantic coastal fisheries, including the U.S. Mid-Atlantic coastal gillnet fishery, North Carolina inshore gillnet fishery, Southeast Atlantic gillnet fishery, Atlantic blue crab trap/pot fishery, Mid-Atlantic haul/beach seine fishery, North Carolina long haul seine fishery, North Carolina roe mullet stop net fishery, and Mid-Atlantic pound net fishery. Additional TRTs will be formed as TRTs are closed out and existing funding becomes available.

Gulf of Maine Harbor Porpoise Take Reduction Plan

NOAA Fisheries established the Gulf of Maine Harbor Porpoise Take Reduction Team (HPTRT) on February 12, 1996, to address incidental takes of the Gulf of Maine/Bay of Fundy stock of harbor porpoise (*Phocoena phocoena*) in the Northeast multispecies sink gillnet fishery. The HPTRT included representatives of the sink gillnet fishery, NOAA Fisheries, Marine Mammal Commission, state marine resource management agencies, New England Fishery Management Council (NEFMC), environmental organizations, and academic and scientific organizations.

Description of the Fishery

The Northeast multispecies sink gillnet fishery is a Category I fishery managed by NOAA Fisheries and the New England Fishery Management Council under the Northeast Multispecies Fishery Management Plan (as authorized by the Magnuson-Stevens Fishery Conservation and Management Act, or Magnuson-Stevens Act). Fishers participating in the Northeast multispecies sink gillnet fishery operate year-round in the nearshore and offshore waters from Maine to Rhode Island. They set their nets along the sea floor to target groundfish; specifically cod, haddock, hake, pollock, flounder, monkfish, and dogfish. Vessels are typically small (30-50 ft or 9-15 m) and operate from ports throughout New England. Each vessel sets between 40 and 200 nets, depending on the target species. Each net is 50

fathoms (300 ft or 90 m) long and nets are tied together in strings of 1-30 nets. The fishery currently includes approximately 341 vessels.

Description of the Marine Mammal Bycatch

Incidental mortality of harbor porpoise in this fishery has been of concern since the late 1980s. In 1990, an observer program was started by NOAA Fisheries to investigate marine mammal takes in the Northeast multispecies sink gillnet fishery. There have been 423 harbor porpoise mortalities related to this fishery observed between 1990 and 1998 and one harbor porpoise released alive and uninjured. Observer coverage has been between 1% and 6% for the years 1990 to 1998. Bycatch in the Northern Gulf of Maine occurs primarily from June to September, while in the Southern Gulf of Maine bycatch occurs from January to May and September to December. Average estimated harbor porpoise mortality and serious injury in the Northeast sink gillnet fishery during 1994-1998 was 1,163 animals (C.V. = 0.11). Estimated annual bycatch (CV in parentheses) from the fishery during 1990-1998 was 2,900 (0.32) in 1990, 2,000 (0.35) in 1991, 1,200 (0.21) in 1992, 1,400 (0.18) in 1993, 2,100 (0.18) in 1994, 1,400 (0.27) in 1995, 1,200 (0.25) in 1996, 782 (0.22) in 1997, and 332 (0.42) in 1998. (C.V.= control volume)

A new abundance survey conducted in July and August of 1999 led to a revised abundance estimate of 89,000 (CV=0.22) harbor porpoise, and a corresponding PBR of 747 animals. The revised abundance estimate and bycatch analysis for 1999 will be presented in the draft 2001 Stock Assessment Report for the Gulf of Maine/Bay of Fundy stock of harbor porpoise.

Although the primary species of concern for bycatch reduction measures in this fishery has been harbor porpoise, this fishery also has incidental mortality of the Western North Atlantic stock of Atlantic white-sided dolphins (*Lagenorhynchus acutus*). Between 1990 and 1998 there were 40 mortalities observed in the Northeast multispecies sink gillnet fishery. Observer coverage has been between 1% and 6% for the years 1990 to 1998. Most white-sided dolphins have been taken in waters South of Cape Ann during April to December. In recent years, the majority of takes have been East and South of Cape Cod. Average annual estimated fishery-related mortality during 1994-1998 was 122 white-sided dolphins per year (CV = 0.31). Estimated annual fishery-related mortalities (CV in parentheses) were 49 (0.46) in 1991, 154 (0.35) in 1992, 205 (0.31) in 1993, 240 (0.51) in 1994, 80 (1.16) in 1995, 114 (0.61) in 1996, 140 (0.61) in 1997, and 34 (0.92) in 1998. The PBR for this stock is 184 animals per year. (See Chapter 1- Stock Assessments)

Elements of the Team's Draft Plan

The HPTRT submitted a consensus draft plan to NOAA Fisheries on August 8, 1996. The team's draft plan

represented a comprehensive approach to the problem of harbor porpoise incidental take. The plan is summarized in the 1997 MMPA Annual Report. *Status of the Plan*

Soon after the HPTRT submitted its plan to NOAA Fisheries, the NEFMC implemented Framework Adjustment 19 to the Northeast Multispecies Fishery Management Plan. This action opened the Mid-Coast area to gillnet fishing with pingers during November and December. Because the NEFMC actions altered the assumptions upon which the HPTRT's consensus proceedings were based, NOAA Fisheries modified the HPTRT's draft plan to be consistent with the fishery management measures and ensure the goal of the plan would still be met.

On August 13, 1997, NOAA Fisheries published a Proposed Rule to implement the HPTRT (62 FR 43302). In the Proposed Rule, NOAA Fisheries also proposed changes and provided updates to several non-regulatory aspects of the Implementation Plan.

Since the publication of NOAA Fisheries' Proposed Rule, new information on the bycatch levels of harbor porpoise became available that strongly indicated that NOAA Fisheries' proposed take reduction measures would not reduce harbor porpoise bycatch in the Gulf of Maine to levels below the PBR level. However, results of the Spring 1997 pinger experiment indicated that pingers appeared to be a viable management strategy throughout the year. In December 1997, NOAA Fisheries reconvened the HPTRT to review this new information and to solicit additional recommendations for more effective bycatch reduction measures. To achieve this goal, the HPTRT recommended tentative time/area closures and periods during which pingers should be used.

NOAA Fisheries incorporated the new information and the team's recommendations in a second Proposed Rule published on September 11, 1998 (63 FR 48670). This Proposed Rule also incorporated harbor porpoise take reduction measures for Mid-Atlantic coastal gillnet fisheries, as recommended by the Mid-Atlantic Take Reduction Team (see next section). The Final Rule implementing take reduction measures for both the Gulf of Maine and mid-Atlantic was published on December 2, 1998 (63 FR 66464). For the Gulf of Maine component, the Final Rule established a series of time and area closures where pingers are required, or where complete closures will be in effect. It also requires training and certification for fishers using pingers. The elements of the Final Rule as it pertains to the Northeast Multispecies sink gillnet fishery are summarized in Table 1 (following page). The fishery has also interacted with Northern right whales (*Eubalaena glacialis*). These interactions are addressed through the Atlantic Large Whale TRT section later in this section.

Table 1. Time/area closures and periods of required pinger use for the Northeast Multispecies sink gillnet fishery as required by the final regulations implementing the Harbor Porpoise Take Reduction Plan.

Northeast Area: Aug. 15 to Sep. 13	Closed
Mid-coast Area: Sep. 15 to May 31	Closed, gillnets with pingers allowed
Massachusetts Bay Area: Dec. 1 to Feb. 28/29	Closed, gillnets with pingers allowed
Mar. 1-31	Closed
Apr. 1 to May 31	Closed, gillnets with pingers allowed
Cape Cod South Area: Dec. 1 to Feb. 28/29	Closed, gillnets with pingers allowed
Mar. 1-31	Closed
Apr. 1 to May 31	Closed, gillnets with pingers allowed
Offshore Area: Nov. 1 to May 31	Closed, gillnets with pingers allowed
Cashes Ledge Area: Feb. 1-28/29	Closed

The HPTRT met December 14-15, 1999 to review elements of the harbor porpoise take reduction plan, discuss how the plan was working, identify areas of improvement, and reach consensus, where possible, on approaches to address those aspects of the plan that need improvement. NOAA Fisheries reported that the agency was encouraged by the reduction in takes since the implementation of the plan in December of 1998, but needed to determine how the reduction in takes was accomplished (i.e., through the plan regulations, fishery management actions, variable harbor porpoise behavior, or a combination of factors). A large portion of the meeting was spent reporting to the HPTRT on activities since the team last met in December 1997. The HPTRT also submitted consensus recommendations addressing pinger operation and testing, data use and reliability, effort measurement, coordination of the impact of closure on the bycatch estimates, enforcement, analysis of the bycatch data, gear studies, analysis of and reduction of fishery management plans, and other related fishery programs and investigations reflective of the plan.

The HPTRT met December 12-14, 2000 for an annual review of plan implementation. The team was presented with the results of the 1999 bycatch

analysis, which showed that the harbor porpoise take was below PBR. The team was also presented with a revised and increased PBR level based on the 1999 survey. NOAA Fisheries requested the HPTRT focus on reaching the long-term goal of the take reduction plan - reduce human-caused mortality and serious injury to levels approaching a zero mortality and serious injury rate. The team made recommendations to NOAA Fisheries, including establishing a program in cooperation with the states to certify that pingers are operational, developing a schedule for penalties for non-compliance with the plan, notifying permit holders about problems with non-compliance, and moving the southern boundaries of the South of Cape Cod closure to include takes observed in 2000.

Mid-Atlantic Harbor Porpoise Take Reduction Team

NOAA Fisheries established the Mid-Atlantic Take Reduction Team (MATRT) on February 25, 1997, to address interactions between harbor porpoise (*Phocoena phocoena*) and the Mid-Atlantic coastal gillnet fishery. The Mid-Atlantic coastal gillnet fishery also has bycatch of another strategic marine mammal stock, Atlantic coastal bottlenose dolphins (*Tursiops truncatus*). Initially this team was to address both bottlenose dolphin and harbor porpoise mortality. However, the team agreed that the development of a TRT for bottlenose dolphins should be delayed to collect more information on stock abundance and identification, and incidental mortality levels. As a result, the team was changed to the Mid-Atlantic Harbor Porpoise TRT (MATRT). NOAA Fisheries intends to convene a separate TRT for bottlenose dolphins in 2001.

Description of the Fisheries

This fishery includes all gillnet fishing from 72° 30' W longitude (the northeastern tip of Long Island) to the North Carolina-South Carolina border, except those fisheries that operate solely within rivers, bays, and estuaries.

Target species of this fishery include, but are not limited to: Atlantic croaker, Atlantic mackerel, Atlantic sturgeon, black drum, bluefish, herring, menhaden, scup, shad, striped bass, sturgeon, weakfish, white perch, yellow perch, dogfish, and monkfish. This fishery is estimated to have more than 655 active participants, many of whom target different species seasonally as the fish stocks migrate North and South along the Atlantic coast. The mesh size used in this fishery varies widely - from 5 inches (12.5 cm) for shad to 12 inches (30 cm) for monkfish. These interstate fisheries are managed in coordination with the Atlantic States Marine Fisheries Commission via state and federal Fishery Management Plans.

Description of the Marine Mammal Bycatch

The offshore portion of the U.S. Mid-Atlantic coastal gillnet fishery that targets monkfish and dogfish has been observed since 1993. This fishery, which extends from North Carolina to New York, is a combination of small vessel fisheries that target a variety of fish species. Between 1995 and 1998, between 3% and 5% of this fishery was observed (in terms of tons of fish landed). Between 1995 to 1998, respectively, 6, 19, 32, and 53 harbor porpoise were observed. Observed effort has been concentrated off of New Jersey and scattered between Delaware and North Carolina from the beach to 50 miles off of the beach. Documented bycatch occurred between December and May, with the majority in February and March and in New Jersey, Maryland, and North Carolina. The fisheries responsible for these mortalities were targeting either dogfish or monkfish. The estimated annual mortality (CV in parentheses) attributed to this fishery was 103 (0.57) in 1995, 311 (0.31) in 1996, 572 (0.35) in 1997, and 446 (0.36) in 1998. Average estimated harbor porpoise mortality and serious injury from the Mid-Atlantic coastal gillnet fishery during 1995 to 1998 was 358 (CV=0.20). (See Chapter 1- Stock Assessments- for more information on marine mammals stocks.)

Elements of the Team's Report

The MATRT submitted a report to NOAA Fisheries on August 25, 1997. Although the team did not reach consensus on a draft plan, the team's report incorporated both consensus and non-consensus recommendations for harbor porpoise bycatch reduction measures, as well as research and data collection recommendations for coastal bottlenose dolphins. Take reduction measures recommended by the team are summarized in the 1997 MMPA Annual Report.

Status of the Plan

NOAA Fisheries combined the take reduction measures recommended for harbor porpoise in the mid-Atlantic with measures recommended for harbor porpoise in the Gulf of Maine and proposed a combined Harbor Porpoise Take Reduction Plan on September 11, 1998 (63 FR 48670). The Final Rule implementing the plan was published on December 2, 1998 (63 FR 66464).

The most significant change from the Proposed Rule to the Final Rule was the application of management measures in the small mesh fishery. Stranding data and other bycatch information suggested that small mesh between 5 inches (12.5 cm) and 7 inches (17.5 cm) may be a source of bycatch. For fisheries using mesh less than 5 inches (12.5 cm), limited data where available to suggest that a bycatch problem exists, yet NOAA Fisheries will continue to collect and evaluate data from this segment of the fishery to determine whether further take reduction measures are necessary. Tables 2 and 3

(following page) summarize the gear restriction and time-area closures put into effect for large and small mesh gillnet under the final rule implementing the Mid-Atlantic Take Reduction Plan.

The MATRT met January 13-14, 2000 to review elements of the harbor porpoise take reduction plan, discuss how the plan is working, identify areas of improvement, and reach consensus, where possible, on approaches to address those aspects of the plan that need improvement. NOAA Fisheries reported that the agency was encouraged with the reduced take levels since the implementation of the plan in December of 1998, but needed to determine the causes of reduction (*i.e.*, through the plan regulations, fishery management actions, variable harbor porpoise behavior, or a combination of factors). The MATRT also submitted consensus recommendations addressing: observer coverage, noncompliance with the requirement to carry an observer, the ability of the MATRT to review proposed rules, adjustment of the Delaware Bay line, redefinition of small mesh fishery as greater than 5.5 in to less than 7 in, that the fishing industry research mitigation strategies for harbor porpoise and bottlenose dolphin including pingers and reflective gillnetting, that NOAA Fisheries provide advice on mitigation strategies, and investigating interactions between recreational gear and harbor porpoise and bottlenose dolphins.

Table 2. Gear requirements for the small mesh gillnet fishery (includes gillnet with mesh size greater than 5 inches (12.7 cm) to less than 7 inches (17.5cm) required by the Final Rule Implementing the Mid-Atlantic Harbor Porpoise Take Reduction Plan.

Floatline Length: New Jersey Waters	less than or equal to 3,000 ft (914.4 m)
Southern Mid-Atlantic Waters	less than or equal to 2,118 ft (645.6 m)
Twine Size: All Mid-Atlantic Waters	greater than or equal to .031 in (.81 mm)
Net Cap: All Mid-Atlantic Waters	45 nets
Net Size:	A net must be no longer than 300 ft (91.4 m)
Net Tagging:	Requires all nets to be tagged by Jan. 1, 2000
Time/Area Closures: New Jersey Mudhole	Closed from Feb. 15 - Mar. 15

Table 3. Gear requirements for the large mesh gillnet fishery (includes gillnet with mesh size greater than 7 in (17.78 cm) to 18 in (45.72 cm) required by the Final Rule implementing the Mid-Atlantic Take Reduction Plan.

Floatline Length: New Jersey Mudhole* New Jersey Waters (excluding the Mudhole*) Southern Mid-Atlantic Waters	less than or equal to 3,900 ft (1188.7m) less than or equal to 4,800 ft (1463.0 m) less than or equal to 3,900 ft (1188.7 m)
Twine Size: All Mid-Atlantic Waters	greater than or equal to .90 mm (.035 inches)
Tie Downs: All Mid-Atlantic Waters	Required
Net Cap: All Mid-Atlantic Waters	80 nets
Net Size:	A net must be no longer than 300 ft (91.4 m)
Net Tagging:	Requires all nets to be tagged by Jan.1, 2000
Time Area Closures: New Jersey Waters to 72 degrees 30'W longitude (including the Mudhole*) New Jersey Mudhole* Southern Mid-Atlantic Waters (MD, DE, VA, NC) to 72 degrees 30'W longitude	Closed from Apr. 1 - 20 Closed from Feb. 15 - Mar. 15 Closed from Feb. 15 - Mar. 15

*New Jersey Mudhole: area off New Jersey with particularly high harbor porpoise bycatch. Defined as an area south of 40°30', north of 30°55', east of the coastline, and west of 73°20'.

On October 27, 2000, NOAA Fisheries issued a Proposed Rule redefining Delaware Bay in the list of exempted waters to include waters landward of the 72 COLREGS line (65 FR 64415). Members of the MATRT recommended by consensus that NOAA Fisheries redefine the list of exempted waters because harbor porpoise stranding and observer data did not justify subjecting fishers in Delaware Bay to gear restrictions. The Final Rule exempting Delaware Bay was published in the *Federal Register* on January 11, 2001 (66 FR 2336).

The MATRT met November 27-30, 2000 for an annual review of plan implementation. The MATRT was presented with the results of the 1999 bycatch analysis, which showed that the harbor porpoise take was below the PBR level. The MATRT was also presented with a revised and increased PBR based on the 1999 survey. NOAA Fisheries requested that the MATRT turn their attention to reaching the long-term goal of the take reduction plan, to reduce human-caused mortality and serious injury to levels approaching a zero mortality and serious injury rate. The MATRT made a number of recommendations to NOAA Fisheries, including soliciting MATRT input on regulatory changes, coordinating between fishery management plan measures and take reduction plan measures, modifying and standardizing gear definitions, improving observer programs, research and education measures that may result in additional bycatch reduction,

researching interactions between harbor porpoise and recreational fisheries, and data analysis.

Atlantic Offshore Cetacean Take Reduction Plan

NOAA Fisheries convened the Atlantic Offshore Cetacean Take Reduction Team (AOCTRT) on May 23, 1996 (61 FR 40819), to address interactions between strategic marine mammal stocks and the Atlantic pelagic driftnet, pair trawl, and longline fisheries for swordfish, tuna and sharks. The AOCTRT includes representatives of each of the three fisheries, environmental and conservation groups, several states, the Mid-Atlantic Fisheries Management Council, independent fisheries, marine mammal biological community, and NOAA Fisheries.

The pelagic pair trawl fishery ceased operating in 1996 when NOAA Fisheries rejected a petition to consider pair trawl gear as an authorized gear type in the Atlantic tunas fishery.

On October 20, 1998, NOAA Fisheries proposed regulations to prohibit the use of driftnets in the Atlantic swordfish fishery and to eliminate any incidental catch allowance for swordfish in any other driftnet fishery. This Final Rule, under the authority of the Magnuson-Stevens Act and the Atlantic Tunas Convention Act, was published in January 1999 (50 CFR 630).

Description of the Fisheries

The Atlantic swordfish fishery is managed by NOAA Fisheries under the Atlantic Swordfish Fishery Management Plan (as authorized by the Magnuson-Stevens Act) and under the Atlantic Tunas Convention Act (ATCA). ATCA directs NOAA Fisheries to regulate the swordfish fishery as required by the International Commission for the Conservation of Atlantic Tunas (ICCAT) and under the Highly Migratory Species Fishery Management Plan (as authorized by the Magnuson-Stevens Act) for Atlantic Tunas, Swordfish, and Shark. The Atlantic tuna fishery is also managed under the authority of ATCA, which authorizes NOAA Fisheries to regulate the tuna fishery as required by ICCAT. The Atlantic shark fishery is managed by NOAA Fisheries under the Atlantic Swordfish Fishery Management Plan.

Longline Fishery. The Atlantic longline fishery operates from the Gulf of Mexico Exclusive Economic Zone (EEZ) and the Caribbean to the Grand Banks. Longlines consist of a continuous monofilament mainline suspended from the surface by a series of floats. Gangions with baited hooks are attached to the mainline at regular intervals. The mainline averages about 40 km (25 mi), but may be as long as 88km (55mi). There are approximately 250 active participants in the fishery.

Description of the Marine Mammal Bycatch

The fishery has taken Risso's dolphin, spotted dolphin, spinner dolphin, common dolphin, and bottlenose dolphin. Since 1992, this fishery has been monitored with about 2% coverage in terms of trips observed (5% was agreed to under ICAAT but has not been achieved).

Status of the Plan

The recommendations submitted by the AOCTRT regarding operation of the pelagic longline fishery were partially addressed under a Fishery Management Plan for Highly Migratory Species (HMS FMP). The Final Rule implementing the FMP was published May 28, 1999 (64 FR 29090). The rule included the team's recommendation that the length of line set be limited to no more than 24 nautical miles (44.5 km) in the mid-Atlantic Bight from July 1, 1999 to June 30, 2000. No longline fishing is allowed in the Northeastern U.S. closed area in June, and all marine mammals hooked or entangled must be immediately released and fishing operations moved at least 1 nautical mile (2 km) before resuming fishing. The rule also implemented a limited access program for the fishery. The only regulatory requirement recommended by the AOCTRT that is not being implemented under the HMS FMP is the reduction of the maximum soak time (by retrieving gear in the order it was set). There were concerns expressed by participants in the fishery that returning to the point where the gear was set would be costly (in terms of fuel costs) and may not be safe in rough seas.

Atlantic Large Whale Take Reduction Team

On August 6, 1996, NOAA Fisheries established the Atlantic Large Whale Take Reduction Team (ALWTRT) to address the incidental bycatch of large baleen whales, primarily the Northern right whale but also humpback, fin, and minke whales in the following fisheries: the Gulf of Maine/U.S. mid-Atlantic lobster trap/pot fishery, the Gulf of Maine sink gillnet fishery, the mid-Atlantic coastal gillnet fishery, and the Southeastern U.S. Atlantic shark gillnet fishery. These whales are considered strategic stocks under the MMPA because they are listed as endangered under the ESA, and/or because the level of human-caused mortality is greater than the calculated PBR levels.

The ALWTRT includes representatives from each fishery, NOAA Fisheries, state marine resource management agencies, the New England Fishery Management Council, the Mid-Atlantic Fishery Management Council, the South Atlantic Fishery Management Council, the Marine Mammal Commission, environmental organizations, and academic and scientific organizations.

Description of the Fisheries

Lobster Trap/Pot Fishery. This fishery is managed by both individual states and by NOAA Fisheries, under the Lobster Fishery Management Plan (as authorized by the Magnuson-Stevens Act). This fishery operates in nearshore and offshore waters in the Gulf of Maine and the mid-Atlantic. Vessels used in the inshore fishery are typically under 15 m (50 ft) in length and have a crew of one to four people. Vessels used in the offshore fishery are typically between 15-30 m (50-100 ft) in length and have a crew of three to five people. Offshore vessels generally fish in waters up to 360 m

Table 4. Closures and restrictions on the Northeast multispecies sink gillnet fishery required by the Atlantic Large Whale Take Reduction Plan.

Location	Dates	Requirements
Great South Channel Restricted Area	April 1 - Jun. 30	Prohibited; exception in the "sliver area"
Great South Channel Restricted Area	July 1 - Mar. 31	Restricted
Cape Cod Bay Restricted Area	Jan. 1 - May 15	Prohibited
Cape Cod Bay Restricted Area	May 16 - Dec. 31	Restricted in federal portion
All other areas in the NE Atlantic	year-round	Prohibited

(1200 ft) deep. There are approximately 14,600 permit holders, including 4,000 vessels that fish in offshore waters. (See Table 5 below for more information on closures of the lobster trap/pot fishery by the ALWTRT.)

Note: See the Northern right whale section in Chapter 2- Conservation and Recovery.

Table 5. Closures and restrictions on lobster trap/pot fishery by the final regulations implementing the Atlantic Large Whale Take Reduction Plan.

Location	Dates	Requirements
Great South Channel Restricted Area	April 1 - Jun. 30	Lobster gear prohibited
Great South Channel Restricted Area	July 1 - Mar. 31	Lobster gear restricted
Cape Cod Bay Restricted Area	Jan. 1 - May 15	Lobster gear restricted
Stellwagen Bank/Jeffrey's Ledge	year round	Lobster gear restricted
All other areas	year-round	Lobster gear restricted

Gulf of Maine and Mid-Atlantic Gillnet Fisheries. See the description of these fisheries under the sections of this chapter on the Gulf of Maine harbor porpoise take reduction plans.

Table 6. Restrictions on the Mid-Atlantic coastal gillnet fishery required by the Atlantic Large Whale Take Reduction Plan.

Location	Dates	Requirements
All areas	Dec. 1 - Mar. 31	Anchored sink gillnet gear restricted
All areas	year-round	Restrictions on hauling, stowing, and setting gillnet gear

Southeast Shark Gillnet Fishery. This fishery is regulated by NOAA Fisheries under the Atlantic Sharks Fishery Management Plan (as authorized by the Magnuson-Stevens Act). It operates primarily in federal waters from the Florida Keys to Savannah, Georgia. Nets are typically 300 m (1000 ft) to 1.6 km (1 mi) in length and are set and fished overnight. There are approximately 12 active fishers in the fishery.

Table 7. Closures and restrictions on the Southeast U.S. driftnet fishery required by the Atlantic Large Whale Take Reduction Plan.

Location	Dates	Requirements
Southeast U.S. restricted area	Nov. 15 - Mar. 31	Driftnet gear prohibited; strikenets are permitted under certain conditions
Southeast observer area	Nov. 15 - Mar. 31	Driftnet vessels required to carry observers if fishing in Southeast observer area. Driftnet gear required to be marked.

Description of the Marine Mammal Bycatch

These numbers are primarily based on sightings of entangled marine mammals. Because some animals may drown or be killed immediately, the actual number may be higher. For more information on these marine mammal stocks, see Chapter 1 on the Marine Mammal Stock Assessment Program. Please see Appendix C for more information on marine mammal bycatch (data obtained from the Center of Coastal Studies).

Status of the Plan

A Final Rule implementing the ALWTRP was published on February 16, 1999 (64 FR 7529). On April 9, 1999 (64 FR 17292), NOAA Fisheries stayed the gear marking requirements for all fisheries regulated by the ALWTRP until November 1, 1999. On December 30, 1999 (64 FR 73434), NOAA Fisheries extended the suspension until November 1, 2000. On November 22, 2000 (65 FR 70316), NOAA Fisheries extended the suspension until new gear marking requirements are implemented by a new Interim Final Rule. On December 21, 2000 (65 FR 80368), an interim final rule implementing the ALWTRT recommended modifications to the ALWTRP to further reduce whale entanglements was published.

Elements of the Interim Final Plan

The Interim Final Rule modified gear requirements to meet the goals of the MMPA without damaging a vital fishing industry. The use of gear modifications to minimize the risks of entangling large whales will be one of the keys to the long-term success of the take reduction plan. In addition, gear covered under this plan must be marked so that the type of gear that entangles cetaceans can be identified. The ALWTRT developed gear technologies that are believed to reduce the likelihood that cetaceans will become entangled, or increase the likelihood that a cetacean will break free from the gear if entangled. The summary Interim Final Rule includes the following measures:

Table 8. Entangled Large Whales- Alive vs. (Dead)

Year	Right	Humpback	Minke	Fin	Unidentified
1999	6(0)	8(1)	0(4)	3(0)	2(0)
2000	6(1)	13(1)	2(1)	0(0)	0(1)
Total	12(1)	21(2)	2(5)	3(0)	2(1)

- Existing area closures for Cape Cod Bay and Great South Channel remain. State water lobster fishermen: No change except for option from Gear Technology List for buoy line weak link to be changed from 1,100 lbs to 600 lbs maximum breaking strength and a requirement that link must be knotless. Gear marking is not required.
- Near and offshore lobster waters to be redefined for consistency with nearshore/offshore and North/South boundaries contained in the American Lobster Fishery regulations.
- Lobster Gear: (1) knotless weak link at buoy with 600 lbs. breaking strength; (2) multiple trap trawls only- single traps are not allowed; (3) limit of one buoy line on all trawls up to /incl. five traps; and (4) offshore lobster gear must use knotless weak link at buoy with breaking strength of 3780 lbs.
- Gillnet Gear: (1) knotless weak link at buoy with a breaking strength of 1,100 lbs; (2) weak links placed in floatline at the center of each panel; (3) net strings of 20 net panels or less be anchored with one of three optional anchoring systems.
- All Gear (except State water lobster gear) must be marked midway on the buoy line.

Pacific Offshore Cetacean Take Reduction Plan

NOAA Fisheries convened the Pacific Offshore Cetacean Take Reduction Team (PCTRT) on February 12, 1996 to address takes of short-finned pilot whales (*Globicephala macrorhynchus*), mesoplodont beaked whales (*Mesoplodon spp.*), Baird's beaked whales (*Berardius bairdii*), Cuvier's beaked whales (*Ziphius cavirostris*), pygmy sperm whales (*Kogia breviceps*), sperm whales (*Physeter macrocephalus*), and humpback whales (*Megaptera novaeangliae*) in the California/Oregon drift gillnet fishery which targets thresher shark and swordfish.

Description of the Fishery

The CA/OR drift gillnet fishery is regulated primarily by the California Department of Fish and Game under a limited access permit system. The Oregon Department of Fish and Wildlife issues up to ten "unlimited" landing permits, although only eight permits were issued in 1999. The fishery operates from the U.S./Mexico border to waters off Oregon and Washington. The fishery is closed from February through April. From May through August, drift gillnets cannot be used to catch swordfish or thresher sharks within 75 nautical miles (nm) of shore. Only limited restrictions are in place from August through January.

Drift gillnets are tied at one end to a vessel and drift with the current at the other end. Most nets are made of multi-

filament nylon and are 1.8 km (1 nm) in length. They typically have a stretched mesh size from 45-55 cm (18-22 in). Extender lines, which attach the net to buoys at the surface, suspend the net below the surface. The net is set at night and retrieved at dawn. There are about 100 active fishers in this fishery.

Description of the Marine Mammal Bycatch

The mortality estimates from observer data available through 1998 are summarized in the 2000 Pacific Marine Mammal Stock Assessment Report. After the 1997 implementation of the take reduction plan, which included skipper education workshops and required the use of pingers and minimum 6-fathom extenders, overall cetacean entanglement rates in the drift gillnet fishery dropped considerably. Recent data suggest all marine mammals stocks, including sperm whales (CA/OR/WA stock) are below PBR and most species are below 10% of PBR.

Elements of the Team's Draft Plan

On June 27, 1996, the PCTRT reached consensus on a draft plan. The PCTRT submitted its draft plan to NOAA Fisheries on August 15, 1996. Take reduction measures recommended by the team are summarized in the 1997 MMPA Annual Report.

Status of the Plan

As recommended by the team, a pinger experiment was conducted in the fishery during the 1996/1997 fishing season, resulting in cetacean entanglement rates being 75% lower in nets that had pingers. Based on these preliminary findings, NOAA Fisheries and the PCTRT both agreed that pingers should be deployed on all nets. This provision was included in the Proposed Rule to implement the plan on February 14, 1997 (62 FR 6931) and in the Final Rule implementing the plan on October 3, 1997 (62 FR 51805). A technical amendment to the Final Rule was published on May 21, 1998 (63 FR 27860) to correct and clarify the Final Rule. In addition, an Interim Final Rule was published on January 22, 1999, to allow fishers the flexibility of using longer lanyards to attach pingers to the leadline and floatline to address safety concerns since NOAA Fisheries determined that the same level of effectiveness should be provided by allowing longer lanyards to be used. The Final Rule, as amended, contains the following regulatory provisions:

- minimum six fathom (36 ft) net buoy line extender length (length of the line from the surface of the water to the top of the net)
- mandatory fleetwide use of pingers on the floatline (top of the net) and leadline (bottom of the net) during all fishing operations and
- mandatory requirement for all vessel owners and captains to attend skipper education

In conjunction with the publication of the Final Rule, NOAA Fisheries has also taken steps to implement the non-regulatory aspects of the plan. NOAA Fisheries has requested that the state of California continue their policy of not reissuing permits that have lapsed and that the State of Oregon not issue more than the current level of permits. The observer program's effectiveness has been enhanced by meeting the 20% observer coverage level recommended by the team, by ensuring that the observer program is targeting all vessels (with the exception of vessels in which there are safety concerns or inadequate space to carry an observer), and by having observers skipper workshops were held throughout California and Oregon in the summer before each session of 1997, 1998, 1999, and 2000. At the workshops, NOAA Fisheries presented updated information on the status and content of the final take reduction plan and background information on the MMPA and the affected marine mammal stocks. NOAA Fisheries also provided demonstrations of pingers and encouraged feedback on the effectiveness of the required fishing strategies in reducing marine mammal interactions through informal question and answer sessions. NOAA Fisheries believes that the skipper education workshops have played a major role in the success of the plan. Results from the observer program indicate that compliance with the plan is high, and that bycatch of marine mammals is below the calculated PBR level for all strategic stocks.

Differentiation of Serious and Non-Serious Injury In Marine Mammals

One of the goals of section 118 of the MMPA is to reduce incidental mortality and serious injury of marine mammals that occurs in the course of commercial fishing operations to below PBR levels. In addition, the long-term goal of the MMPA is to reduce incidental mortality and serious injury to insignificant levels approaching a zero mortality and serious injury rate. Defining the concept of "serious injury" is integral to implementing the MMPA.

NOAA Fisheries provided a clear definition of "injury" to marine mammals under the final regulations implementing the 1994 amendments to the MMPA (50 CFR 229.2), as...

"...a wound or other physical harm. Signs of injury include, but are not limited to, visible blood flow, loss of or damage to an appendage or jaw, inability to use one or more appendages, asymmetry in the shape of the body or body position, noticeable swelling or hemorrhage, laceration, puncture, or rupture of eyeball, listless appearance or inability to defend itself, inability to swim or dive upon release from fishing gear, or signs of equilibrium imbalance. Any animal that ingests fishing gear, or any animal that is released with fishing gear entangling, trailing, or perforating any part of the body will be considered injured regardless of the absence of any wound or other evidence of an injury."

However, recognizing that determining which injuries are likely to lead to mortality, and thus should be considered serious, is tremendously difficult, NOAA Fisheries defined serious injury more broadly, as...

"...any injury that will likely result in mortality."

On April 1-2, 1997, a workshop was held to explore this issue and to begin developing a broad range of guidelines that could be used to determine which marine mammals entangled in fishing gear or injured incidental to fishing operations should be considered seriously injured as a result of the encounter. (For more background on this issue, and a summary of the workshop's findings, see the *1997 MMPA Annual Report*). The results of this workshop were published as a NOAA technical memorandum. Based on guidance from this workshop, NOAA Fisheries will be reviewing incidental marine mammal injuries for several fisheries to determine which injured animals should be considered "seriously injured". These determinations were published in the *Marine Mammal Stock Assessment Reports for 2000* and considered in the 2001 LOF.

Authorization for the Incidental Taking of Threatened or Endangered Marine Mammals

Section 101(a)(5)(E) of the MMPA allows for the take of marine mammals listed as endangered or threatened under the ESA incidental to commercial fishing operations, if it can be determined that:

- Incidental mortality and serious injury will have a negligible impact on affected species or stock
- A recovery plan for that species or stock has been developed or is being developed and
- Where required under section 118, a monitoring program has been established, vessels are registered, and a take reduction plan has been developed or is being developed.

In order to determine whether commercial fishing activities are having a negligible impact on endangered and threatened stocks of marine mammals, NOAA Fisheries evaluates the above criteria. The permits issued under 101(a)(5)(E) in 1995 (August 31, 1995; 60 FR 45299) expired at the end of 1998. No permits were issued for stocks of marine mammals in the Atlantic Ocean because a negligible impact determination could not be made. NOAA Fisheries issued a three-year permit to authorize the incidental, but not intentional, take of the following four stocks of threatened or endangered marine mammals by the California/Oregon drift gillnet fishery (October 30, 2000; 65 FR 64670).

- Fin whale, California/Oregon/Washington
- Humpback whale, California/Oregon/Washington-Mexico
- Steller sea lion, Eastern
- Sperm whale, California/Oregon/Washington

chapter 7 dolphin/fishery interactions- eastern tropical pacific

1999-2000

In the late 1950s, fishermen began using the as yet unexplained association between schools of large yellowfin tuna and schools of certain species of dolphin to locate and capture tuna. In fact, the Marine Mammal Protection Act (MMPA) was enacted in 1972, due in large part to public reaction to the high levels of dolphin mortality caused by the yellowfin tuna purse seine fishery in the Eastern Tropical Pacific Ocean (ETP). For additional information about the NOAA Fisheries Tuna/Dolphin Program, visit the NOAA Fisheries Office of Protected Resources Tuna/Dolphin Program web site at:

http://www.nmfs.noaa.gov/prot_res.html

At that time, the ETP tuna purse seine fishery was dominated by U.S. vessels, and annual mortality was estimated at over 350,000 dolphins. With enactment of the MMPA, incidental mortality from fishing by the U.S. domestic fleet declined, but participation in the fishery by foreign vessels began to increase. Although the U.S. industry was instrumental in developing gear and procedures for reducing mortality and for releasing dolphins alive, foreign vessels were not subject to the requirements of the MMPA, and international fleet mortality began to rise as a result of the increase in the number of foreign vessels. (See Table 1 at end of chapter for Estimates of Total Incidental Dolphin Mortality for U.S. and Foreign Purse Seine Vessels in the Eastern Tropical Pacific Ocean, 1971-2000).

To address the increased mortality by foreign vessels, the U.S. Congress amended the MMPA several times in the 1980s to tighten the importation requirements for tuna and tuna products harvested by foreign tuna vessels in the ETP. These amendments required that nations exporting yellowfin tuna to the U.S. have in place a regulatory program for marine mammal protection comparable to that of the U.S., and achieve an incidental mortality rate for dolphins in the yellowfin tuna fishery comparable to that of the U.S. Those amendments also set mortality limits on coastal spotted dolphins (*Stenella attenuata*) and Eastern spinner dolphins (*Stenella longirostris*) for the U.S. fleet in the ETP tuna purse seine fishery.

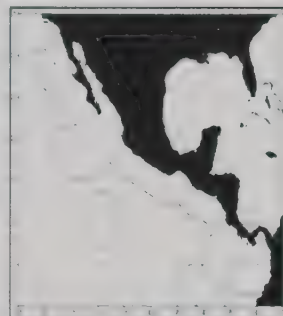
Other amendments to the MMPA in the 1980s clarified what the Secretary of Commerce must consider when determining whether a foreign nation is taking measures comparable to those of the U.S. in protecting dolphins in the ETP. They included the same prohibitions that were applicable to U.S. vessels and set limits on total dolphin

mortality and the percentage of Eastern spinner and coastal spotted dolphins in the total mortality. Additional amendments to the MMPA also required certification under the Pelly Amendment for those nations not meeting the comparability requirements of the MMPA for a period of six months.

The embargoes that resulted from the MMPA requirements were challenged by other countries as being inconsistent with the General Agreement on Tariffs and Trade (GATT). Although never formally adopted by the GATT, a panel report found the U.S. embargoes to be inconsistent with GATT provisions.

In 1990, the U.S. Congress passed the Dolphin Protection Consumer Information Act (DPCIA). The DPCIA required that tuna labeled as "dolphin-safe" meet certain criteria. Under the dolphin-safe definition, all tuna harvested in the ETP on a trip where there was any intentional encirclement of dolphins could not be considered dolphin-safe. The DPCIA did not prohibit tuna that did not meet the dolphin-safe labeling requirements from being imported, but U.S. tuna canners instituted a voluntary campaign where they purchased only dolphin-safe tuna for processing.

The International Dolphin Conservation Act (IDCA) was passed in 1992, with the intent to establish an international moratorium on the practice of harvesting tuna through the use of purse seine nets deployed on or to encircle dolphins or other marine mammals. Although the U.S. was unsuccessful in getting any other nations to commit to such a moratorium, the IDCA limited U.S. dolphin mortality to 1,000 dolphins for 1992 and 800 for the period between January 1, 1993, and March 1, 1994. Under the IDCA, estimated U.S. dolphin mortality dramatically decreased from 19,712 animals in 1988 to 115 in 1993. The IDCA prohibited U.S. citizens from intentionally encircling marine mammals and made it unlawful for any person to sell non-dolphin safe tuna in the U.S. after June 1, 1994. However, foreign mortality was managed under the voluntary international dolphin conservation program supported by the Inter-American Tropical Tuna Commission (IATTC)



La Jolla Agreement and the Panama Declaration

U.S. participation in the ETP tuna fishery declined significantly in part as a result of the MMPA prohibitions on encircling dolphins (only a few U.S. vessels remained in the fishery). As U.S. mortality rate approached zero, nations that fished for tuna in association with dolphins could no longer meet the comparability requirement and were embargoed by the U.S.. In the fall of 1992, the nations participating in this fishery convened at the annual meeting of the IATTC and signed the La Jolla Agreement, placing voluntary limits on the maximum number of dolphins that could be incidentally killed annually in the fishery, lowering the maximum each year over seven years.

However, participation in and success of the voluntary La Jolla Agreement did not resolve the embargo issues. Because the multi-nation yellowfin tuna fleet fishes in international waters, NOAA Fisheries and many others involved in this issue believe that a binding international agreement is key to successfully protecting dolphins in the ETP. In 1995, the U.S. and the governments of Belize, Colombia, Costa Rica, Ecuador, France, Honduras, Mexico, Panama, and Spain came together again and negotiated the Panama Declaration. The Panama Declaration initiative was the result of the efforts of five environmental organizations, the Center for Marine Conservation, Greenpeace International, World Wildlife Fund, National Wildlife Federation, and the Environmental Defense Fund, who negotiated the initial drafts of the agreement. The signing nations agreed that, contingent on the U.S. amending provisions of the MMPA to resolve the embargo issue and modify the definition of dolphin-safe tuna, they would enter into a binding international agreement for the continued protection of dolphins and the entire ETP ecosystem. The Panama Declaration set the stage for the establishment of conservative species/stock specific annual dolphin mortality limits and represented an important step toward reducing bycatch in commercial fisheries with sound ecosystem management.

International Dolphin Conservation Program Act (IDCPA) and the Agreement on the International Dolphin Conservation Program (AIDCP)

Through international cooperation, total dolphin mortality in the ETP was down to 3,000, a level considered non-threatening to dolphin stocks by 1997. To fulfill U.S. commitments to the nations that had worked so hard to reduce dolphin mortality under the La Jolla Agreement and the Panama Declaration, the U.S. Congress passed the IDCPA (Public Law 105-42) in August 1997. The IDCPA amends the import provisions of the MMPA to allow yellowfin tuna to be imported from IATTC member nations that fish in compliance with the IDCP and establishes criteria for changing the definition of dolphin-safe to allow tuna caught under the AIDCP to be labeled dolphin-safe.

The IDCPA provides the basis for entry into the U.S. of yellowfin tuna that would otherwise be under embargo because it was harvested by vessels of countries that allow intentional encircling of marine mammals, provided the harvesting nation provides documentary evidence of its participation in and compliance with dolphin and tuna conservation measures of the IDCP and the IATTC. This multi-lateral, ecosystem approach to conservation won the support of a number of environmental organizations, including the Center for Marine Conservation and the World Wildlife Fund, who all supported passage of the legislation.

In February 1998, the countries participating in the IDCP successfully negotiated the Agreement on the International Dolphin Conservation Program (AIDCP), which is a legally binding instrument for dolphin conservation and ecosystem management in the ETP. The AIDCP became effective on February 15, 1999, when Mexico, the fourth country, ratified it and deposited its instrument of ratification with the U.S. To date, Costa Rica, Ecuador, El Salvador, Honduras, Mexico, Nicaragua, Panama, Peru, U.S., and Venezuela have ratified the AIDCP, and the European Union (*i.e.*, Spain), Vanuatu, and Colombia have agreed to implement the AIDCP provisionally.

The IDCPA became effective March 3, 1999 when the Secretary of State certified to Congress that a legally binding instrument establishing the AIDCP had been adopted and was in force, the Secretary of Commerce certified that research had begun on the effects of intentional chase and encirclement on ETP dolphins, and that funds were available to complete the first year of the study.

The IDCPA includes revisions to three statutes: the MMPA, the DPCIA, and the Tuna Conventions Act (16 U.S.C. §§ 951-962). The IDCPA changes the DPCIA standard for dolphin-safe labels on tuna products containing tuna harvested in the ETP by purse seine vessels with carrying capacity greater than 400 short tons (362.8 mt). Before section 5(c) of the IDCPA became effective, such tuna products could be labeled dolphin-safe only if no intentional setting on dolphins occurred during the entire fishing trip. The IDCPA also allows U.S. fishing vessels to again participate in the ETP yellowfin tuna fishery by making sets on dolphins.

Contingent upon the results of research into the effects of chase and encirclement on depleted dolphin stocks, the legislation would change the definition of dolphin-safe to mean tuna caught in a set without any observed dolphin deaths or serious injury, rather than tuna caught without intentionally encircling dolphins on any set during an entire trip.

Regulations Implementing the IDCPA

On June 14, 1999, NOAA Fisheries published proposed regulations (64 FR 31806) to implement provisions of the IDCPA. These regulations allow the importation of yellowfin tuna that would otherwise be under embargo from nations in compliance with the IDCP and allow U.S. vessels to participate in the yellowfin tuna fishery in the ETP. A U.S. citizen employed on a purse seine vessel of another AIDCP signatory nation could participate in intentional encirclement of dolphin if that vessel takes marine mammals incidentally during fishing operations outside of the U.S. EEZ in compliance with the requirements of the AIDCP. The proposed regulations also changed the standard of dolphin-safe labeling for tuna products, unless NOAA Fisheries determines that intentional encirclement is having a significant adverse effect on depleted dolphin stocks in the ETP and contain provisions to ensure adequate tracking and verification of tuna imports from the ETP. After receiving a considerable number of comments on the Proposed Rule, on December 8, 1999, NOAA Fisheries issued a Biological Opinion and an Environmental Assessment, and the Interim Final Rule was published in the *Federal Register* on January 3, 2000 (65 FR 30). NOAA Fisheries anticipates the completion of the Final Rule in 2002.

Mandated Research and Findings

The IDCPA requires the Secretary of Commerce to conduct scientific research and make a determination of whether the intentional deployment on or encirclement of dolphins with purse seine nets is having a "significant adverse impact" on any depleted dolphin stock in the ETP. Dolphin stocks in the ETP now designated as depleted under the MMPA are the Eastern spinner, Northeastern offshore spotted, and the coastal spotted dolphins. If NOAA Fisheries makes a finding of no significant adverse impact, the "dolphin-safe" labeling standard under paragraph (h)(1) of the DPCIA (*i.e.*, that no dolphins were killed or seriously injured during the sets in which the tuna were caught) replaces the previous standard. The IDCPA requires the Secretary to make an initial finding in March 1999 and a final finding by the end of 2002.

To make these determinations, the IDCPA requires NOAA Fisheries to use abundance surveys conducted during each of the calendar years 1998, 1999, and 2000, and stress studies including, "(A) a review of relevant stress-related research and a three-year series of necropsy samples from dolphins obtained by commercial vessels; (B) a one-year review of relevant historical demographic and biological data related to dolphins and dolphin stocks referred to in paragraph (1); and (C) an experiment involving the repeated chasing and capturing of dolphins by means of intentional encirclement."

On April 29, 1999, NOAA Fisheries made an initial finding that there was insufficient evidence to determine that the

chase and encirclement of dolphins in the ETP by the tuna purse seine fishery was having a significant adverse impact on any depleted dolphin stock in the ETP (64 FR 24590). To make its initial finding, NOAA Fisheries used population abundance survey data gathered by NOAA Fisheries scientists, a comprehensive review of scientific literature on stress in marine mammals, current and historical environmental information from the ETP, and other available data. In a Report to Congress, NOAA Fisheries concluded that the currently depleted populations of both Northeastern offshore spotted dolphins and Eastern spinner dolphins are apparently not increasing at the rate which would be expected for the low rate of reported mortalities from the ETP purse seine fishery since 1991 and the reproductive potential for these populations.

The Report also indicated that determining the cause of the apparent failure of dolphin stocks to recover at expected rates is extremely difficult. The Report to Congress preliminarily evaluated two possible causes for the apparent failures of depleted dolphin stocks to recover: (1) changing environmental conditions and (2) indirect or unobserved effects of the fishery. A preliminary review of environmental conditions did not reveal any regime shift or any other large-scale oceanographic change during the past few decades that might affect population growth rates of depleted dolphin stocks. After a review of the literature on stress-related research, NOAA Fisheries concluded that it is plausible that stress resulting from chase and capture in the ETP yellowfin tuna fishery could be causing a population level effect on depleted dolphin stocks (*i.e.*, increased mortality and/or decreased reproduction), but NOAA Fisheries was not able to extrapolate effects on individual animals to population effects based on available data.

The 1999 Report to Congress neither provided conclusive evidence that the ETP tuna purse seine fishery is the cause of the failure of depleted dolphin stocks to recover as expected nor dismisses the fishery as a possible cause. With regard to the coastal spotted dolphins in the ETP, NOAA Fisheries lacks much of the essential information on mortality and abundance, especially from the early years of the fishery when the impact on the stocks would have likely been the greatest. Additionally, there seems to be a large disparity in population abundance estimates of coastal spotted dolphins from the late 1980s to 1998, making it difficult to evaluate whether the coastal spotted dolphin population in the ETP has been affected by the ETP tuna purse seine fishery. Overall, NOAA Fisheries believes that more scientific research is necessary to better evaluate the effect of the tuna purse seine fishery on depleted dolphin stocks in the ETP.

As a result of NOAA Fisheries' initial finding, tuna products containing tuna harvested in the ETP by purse seine vessels greater than 400 short tons (362.8 mt) could be labeled "dolphin-safe" only if no dolphins were killed or seriously injured during the set in which the tuna were caught. This change in the dolphin-safe labeling standard became operative on the effective date of the interim final regulations to implement the IDCPA, February 2, 2000. While some environmental groups charge that this change weakens the dolphin-safe standard, NOAA Fisheries believes that the IDCPA and the AIDCP provide enhanced, long-term protection for dolphins and enhanced attention to the conservation of ecosystems and the sustainable use of living marine resources related to the tuna fishery in the ETP. However, due to a decision by a U.S. District Court in *Brower v. Daley*, the use of this definition of dolphin-safe has been set aside. (See Litigation section of this chapter for more information.)

Because of the strict deadline for the initial finding, additional information is expected to be available for the final finding that was not available in 1999, including some of the longer-term studies and additional oceanographic data.

Designation of the Official "Dolphin-Safe" Mark

The DPCIA, 16 U.S.C. § 1385, as amended by the IDCPA, requires NOAA Fisheries (acting on behalf of the Secretary of Commerce) to develop an official mark that may be used to label tuna products as dolphin-safe. The DPCIA establishes dolphin-safe standards applicable to tuna products labeled with either the official mark or an alternative mark. The DPCIA does not mandate the use of the official mark nor does it prohibit the use of alternative marks. However, as set forth under paragraph (d)(3)(B) of the DPCIA, whenever a tuna product bears the official mark, it may not bear any other mark or label that refers to dolphins, porpoises, or marine mammals. NOAA Fisheries considered the designation of a commonly used dolphin-safe logo as the official mark, but instead decided to develop a unique logo as the official mark (see below).



On December 22, 1999, NOAA Fisheries published a Proposed Rule designating the official dolphin-safe mark or logo (64 FR 71722). In addition to publishing the Proposed Rule in the *Federal Register*, NOAA Fisheries sent via fax and mail the *Federal Register* Notice to fishing industry representatives, environmental groups, the Department of State, the Inter-American Tropical Tuna Commission (IATTC), the U.S. Commissioners to the IATTC, the Secretary of the Treasury, the U.S. Customs Service, the Marine Mammal Commission, and the Federal Trade Commission. NOAA Fisheries also issued a press release and distributed on e-mail discussion groups and NOAA Fisheries web sites information summarizing the major issues contained in the proposed rule. On May 30, 2000, NOAA Fisheries published the Final Rule designating the official dolphin-safe mark (65 FR 34408) and responding to comments submitted by the public on the Proposed Rule.

Affirmative Findings Process Under the IDCPA

The MMPA, 16 U.S.C. 1361 *et seq.*, as amended by the IDCPA, allows the entry into the U.S. of yellowfin tuna harvested by purse seine vessels in the ETP under certain conditions. If requested by the harvesting nation, NOAA Fisheries will determine whether to make an "affirmative finding" based upon documentary evidence provided by the government of the harvesting nation, by the IDCP, the IATTC, or the Department of State. An affirmative finding applies to yellowfin tuna and tuna products that were harvested in the ETP by purse seine vessels of the nation, and applies to any tuna harvested in the ETP purse seine fishery after March 3, 1999, the effective date of the IDCPA. A finding will remain valid for one year (April 1 through March 31) or for such other period as NOAA Fisheries may determine. The harvesting nation must submit an application directly to NOAA Fisheries for the first affirmative finding. Every five years, the government of the harvesting nation, must request an affirmative finding and submit the required documentary evidence directly to NOAA Fisheries. NOAA Fisheries may require the submission of additional supporting documentation or verification of statements made in connection with requests to allow importations. An affirmative finding will be terminated, in consultation with the Secretary of State, if NOAA Fisheries determines that the requirements of 50 CFR 216.24(f)(9) are no longer being met or that a nation is consistently failing to take enforcement actions on violations which diminish the effectiveness of the IDCP.

NOAA Fisheries issued affirmative findings for the Government of Mexico and the Republic of Ecuador on April 12, 2000, and May 31, 2000, respectively. NOAA Fisheries reviewed the applications and documentary evidence submitted by Mexico and Ecuador and determined that the requirements under the MMPA to receive an affirmative finding had been met for the



setting purse seine net;
NOAA Fisheries file photo

purposes of issuing an affirmative finding for the period April 1 - March 31, 2001. For the years 2001 through 2004, NOAA Fisheries will work with the IATTC and the Department of State to determine, on an annual basis, whether these nations or any other that receives an affirmative finding are meeting the requirements under section 101(a)(2)(B) and (C) of the MMPA to determine whether the finding should be renewed.

The Government of Spain also submitted documentary evidence to receive an affirmative finding. However, NOAA Fisheries personnel reviewed the application and evidence submitted by the Government of Spain and obtained from the IATTC and determined, in consultation with the Department of State, that the requirements under the MMPA to receive an affirmative finding had not been met. Therefore, on October 6, 2000, NOAA Fisheries issued an embargo on yellowfin tuna and products derived from yellowfin tuna harvested in the ETP by Spanish-flag purse seine vessels or vessels under Spanish jurisdiction after March 3, 1999, and all other yellowfin tuna harvested by purse seine in the ETP exported from Spain to be imported into the United States. This embargo remains in effect until further notice. NOAA Fisheries may reconsider a finding upon request from, and the submission of additional information by, a harvesting nation.

Harvesting Nation Embargoes

Pursuant to the IDCPA, if a nation harvesting tuna in the ETP with purse seine vessels with greater than 400 short tons (362.8 mt) of carrying capacity and has not received an affirmative finding as required by 50 CFR 216.24(f)(9), NOAA Fisheries must embargo yellowfin tuna and yellowfin tuna products of that nation harvested by purse seine in the ETP after March 3, 1999. Under this provision, on October 3, 2000, NOAA Fisheries embargoed yellowfin tuna and yellowfin tuna products from Belize, Bolivia, Colombia, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Vanuatu, and Venezuela under the MMPA. This action prohibits the importation into the U.S. from these nations of yellowfin tuna and yellowfin tuna products harvested by purse seine in the ETP.

Prior to March 3, 1999, section 101(a)(2)(B) of the MMPA required nations wishing to import into the U.S. yellowfin tuna or yellowfin tuna products harvested by purse seine in the ETP to submit documentation indicating that they were enforcing dolphin protection measures comparable to those of the U.S. Under section 101(a)(2)(B) of the MMPA effective prior to March 3, 1999, Belize, Colombia, Ecuador, Mexico, Panama, Vanuatu, and Venezuela were embargoed. The existing embargoes against yellowfin tuna harvested by purse seine in the ETP and exported from those five nations remain in effect. Since March 3, 1999, the standards of the MMPA, as amended by the IDCPA, changed for the entry into the U.S. of yellowfin tuna and yellowfin tuna products harvested by purse seine vessels in the ETP, as set forth by the interim final rule implementing the IDCPA (65 FR 30).

Until such time as NOAA Fisheries receives documentary evidence from the Governments of Belize, Bolivia, Colombia, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Vanuatu, and Venezuela demonstrating that they qualify for affirmative findings, embargoes on yellowfin tuna harvested by purse seine in the ETP by these nations will continue.

Intermediary Nation Embargoes

On August 19, 2000, NOAA Fisheries made changes in the "intermediary" nation status for the Governments of Costa Rica, Italy, and Japan under the MMPA. An intermediary nation is a nation that exports yellowfin tuna or yellowfin tuna products to the United States and that imports yellowfin tuna or yellowfin tuna products that are subject to a direct ban on importation into the United States pursuant to section 101(a)(2)(B) of the MMPA. These changes allow the importation into the United States from Costa Rica, Italy, and Japan of yellowfin tuna and yellowfin tuna products harvested in the ETP after March 3, 1999, the effective date of the IDCPA.

NOAA Fisheries imposed the intermediary nation embargoes on these three nations as a result of a court order dated February 3, 1992 by Judge Thelton Henderson of the U.S. District Court for the Northern District of California. NOAA Fisheries was ordered to impose embargoes on certain intermediary nations under section 101(a)(2)(C) of the MMPA. At that time, section 101(a)(2)(C) mandated that NOAA Fisheries and the U.S. Customs Service "... require the government of any intermediary nation, from which yellowfin tuna or yellowfin tuna products will be exported to the United States to certify and provide reasonable proof..."

Based on the phrase "from which yellowfin tuna or yellowfin tuna products will be exported," Judge Henderson determined that Congress had intended the

scope of the intermediary nation embargoes to cover "all yellowfin tuna and tuna products" (*Earth Island Institute v. Mosbacher* 785 F. Supp. 826, 833 (N. D. Cal. 1992)). On November 2, 1992, after Judge Henderson's decision, Congress amended the MMPA and revised paragraph 101(a)(2)(C) to require that an intermediary nation "...certify and provide reasonable proof to the Secretary that it has not imported, within the preceding 6 months, any yellowfin tuna or yellowfin tuna products that are subject to a direct ban on importation into the United States under subparagraph (B)." (from Public Law 102-582)

Under the current intermediary nation embargo provisions (which the IDCPA recodified as section 101(a)(2)(B)), an intermediary embargo applies only to that yellowfin tuna harvested by purse seine in the ETP. The regulations to implement the IDCPA also specify that the intermediary and primary nation embargoes apply only to yellowfin tuna harvested by purse seine vessels greater than 400 short tons (362.8 mt) carrying capacity in the ETP. Although NOAA Fisheries had evidence to determine these nations to be intermediary nations under the original standard as interpreted in Judge Henderson's ruling, the evidence was not sufficient to indicate that Costa Rica, Japan, and Italy were intermediary nations under the amended definition.

This determination remains in effect until NOAA Fisheries has sufficient evidence that these nations are importing yellowfin tuna or tuna products subject to a direct ban under the MMPA. NOAA Fisheries will review the status of intermediary nation determinations at the request of such nations or if it has evidence that a nation is importing yellowfin tuna or tuna products subject to a direct ban under section 101(a)(2)(B) of the MMPA. Such requests must be accompanied by specific and detailed supporting information or documentation indicating that a review or reconsideration is warranted.

Litigation

On August 17, 1999, in response to the regulations implementing the IDCPA, twelve environmentalists and environmental organizations filed a complaint against the Department of Commerce and NOAA Fisheries alleging that NOAA Fisheries violated the MMPA, the DPCIA, and the IDCPA. *Brower v. Daley* seeks to prevent the change in the dolphin-safe label. The plaintiffs alleged that NOAA Fisheries failed to follow the requirements of these Acts in its April 29, 1999 initial finding that there was insufficient evidence to conclude that the encirclement of dolphins with purse seine nets by fishing vessels in the ETP is having a significant adverse impact on depleted ETP dolphin stocks.

On April 11, 2000, the U.S. District Court for the Northern District of California reversed the NOAA Fisheries' initial finding under paragraph (g)(1) of the DPCIA in the

Brower v. Daley case. Prior to this ruling, the new labeling standard would have allowed the dolphin-safe label to be used on yellowfin tuna caught in the ETP by purse seine vessels with a carrying capacity greater than 400 short tons (362.8 mt) if no dolphins were killed or seriously injured during the set in which the tuna were caught. This ruling caused the dolphin-safe labeling standard to revert back to the standard in place before February 2, 2000, effectively preventing yellowfin tuna imports that would otherwise have been considered "dolphin-safe" from being sold as such. Essentially, if a nation harvests yellowfin tuna in the ETP by purse seine through the chase and encirclement of dolphins, this tuna cannot be labeled "dolphin-safe," even though the nation is operating in compliance with the dolphin and tuna conservation measures of the IDCPA.

The court ruled that NOAA Fisheries did not act in accordance with the law because it did not adequately consider preliminary results from stress studies on dolphins in the ETP, as required by the MMPA. On May 18, 2000, the Federal defendants filed an appeal, and on December 11, 2000, oral arguments were held before a panel of judges on the 9th Circuit Court of Appeals. Pending the decision on the appeal, yellowfin tuna harvested in the ETP by large purse seine vessels and imported into the U.S. will be considered "dolphin-safe" only if no intentional setting on dolphins occurred during the trip, and no dolphins were seriously injured or killed during the set in which the tuna were harvested.

In another pending case, *Defenders v. Dalton*, several environmental organizations filed suit against NOAA Fisheries on February 8, 2000, in the Court of International Trade (CIT). The plaintiffs seek to prevent NOAA Fisheries from implementing the regulations on the IDCPA and lifting the tuna embargoes. On April 14, 2000, the CIT declined to enjoin NOAA Fisheries from making affirmative findings to lift embargoes against Mexico or other ETP tuna fishing nations. The decision is temporary pending a ruling on the merits of the case. The schedule for summary judgement briefings to the court is set under which briefings will be concluded on May 25, but there is no hearing schedule as of yet.

Table 1. Estimates of Total Incidental Dolphin Mortality For U.S. and Foreign Purse Seine Vessels in the Eastern Tropical Pacific Ocean, 1971-2000

Year	U.S. Vessels ¹	U.S. Kill ²	Foreign Vessels ¹	Foreign Kill ³	Total Kill ⁴
1971	124	246,213	48	15,715	261,928
1972	127	368,600	58	55,078	423,678
1973	133	206,697	68	58,276	264,973
1974	135	147,437	77	27,245	174,682
1975	142	166,645	82	27,812	194,457
1976	155	108,740	94	19,482	128,222
1977	142	25,452	104	25,901	51,353
1978	101	19,366	121	11,147	30,513
1979	93	17,938	121	3,488	21,426
1980	89	15,305	132	16,665	31,970
1981	94	7,890	118	7,199	35,089
1982	89	23,267	97	5,837	29,104
1983	60	8,513	99	4,980	13,493
1984	34	17,732	91	22,980	40,712
1985	36	19,205	105	39,642	58,847
1986	34	20,692	101	112,482	133,174
1987	34	13,992	126	85,195	99,187
1988	37	19,712	95	59,215	78,927
1989	29	12,643	93	84,336	96,979
1990	29	5,083	94	47,448	52,531
1991	13	1,004	90	26,288	27,292
1992	7	431	90	15,108	15,539
1993	7	115	89	3,486	3,601
1994	7	106	75	3,989	4,095
1995	5	0	99	3,274	3,274
1996	6	0	88	2,547	2,547
1997	6	0	92	3,000	3,000
1998	6	24	92	1,853	1,877
1999	6	0	132	1,436	1,436
2000	6	0	129	1,636	1,636

- 1 Data for U.S. Vessel and Foreign vessel numbers obtained from Inter-American Tropical Tuna Commission (IATTC)
- 2 Data for U.S. kill numbers obtained from NOAA Fisheries
- 3 Data for Foreign kill numbers derived by subtracting U.S. data from IATTC total mortality estimates of sets made on dolphins during the period
- 4 Data for Total kill numbers obtained from NOAA Fisheries for the period of 1971-1978 and from IATTC for the period after 1978 using MPS method

native take

Section 101(b) of the Marine Mammal Protection Act (MMPA) provides an exemption from the provisions of the MMPA for Alaskan Indians, Aleuts, or Eskimos in the takings of marine mammals for subsistence purposes or for purposes of creating and selling authentic Native articles of handicrafts and clothing. These takes may be limited by quota and other regulations if the species involved is determined to be depleted under the MMPA and after notice and hearing procedures under MMPA section 103. Two subsistence species, the bowhead whale (*Balaena mysticetus*) in the Beaufort and Chukchi Seas, and the Northern fur seal (*Callorhinus ursinus*) on the Pribilof Islands, were subject to such limitations at the beginning of 1999. Regulating the harvest of both of these species, however, was initiated under authorities other than the MMPA, and formal hearings were not conducted. The bowhead whale harvest is regulated under the International Whaling Commission (IWC), and the Fur Seal Act (FSA) regulates the fur seal harvest.

In 2000, NOAA Fisheries issued a Proposed Rule to regulate the harvest of another population stock of marine mammals, the Cook Inlet (CI) beluga whales (*Delphinapterus leucas*). Descriptions of the CI beluga harvest and its regulation are contained in the discussion of CI Harvest later in this chapter and in the overview of Conservation and Recovery Programs (Chapter 2).

In 1994, section 119 was added to the MMPA. This section clarified that the Secretary of Commerce (NOAA Fisheries) has the authority to:

"enter into cooperative agreements with Alaska Native organizations to conserve marine mammals and provide co-management of subsistence use by Alaska Natives."

Under section 119, NOAA Fisheries may provide grants to Alaskan Native organizations to facilitate the:

- 1) collection and analysis of marine mammal data
- 2) participation of the organization in marine mammal research projects
- 3) monitoring of Alaskan Native harvests of marine mammals and
- 4) development of co-management regimes with Federal agencies

In April 1996, the Indigenous People's Council for Marine Mammals (IPCoMM) expressed to NOAA Fisheries and U.S. Fish and Wildlife Service (USFWS) its concern about the need to develop a framework for governing the



development of cooperative agreements for individual species of marine mammals. It provided a draft agreement for consideration and, after several workshops and drafting sessions, an official Memorandum of Agreement (MOA) was signed by NOAA Fisheries, USFWS, the U.S. Geological Survey, and IPCoMM on August 27, 1997.

This umbrella agreement was designed to assist in the development and implementation of section 119 agreements and promote the sustained health of marine mammal populations utilized for subsistence. The MOA recommends that section 119 agreements consider:

- collection and analysis of marine mammal natural history and population data
- development of co-management infrastructures
- cooperation in enforcement efforts
- establishment of harvest levels
- development and distribution of public education materials
- development of management plans
- incorporation of traditional knowledge into management decision making and training

In 1999, NOAA Fisheries and two Alaska Native organizations completed other co-management agreements for stock-specific conservation programs. In April, NOAA Fisheries and the Alaska Native Harbor Seal Commission signed an agreement that established a co-management committee that would facilitate communications between the two parties and would develop an action plan for site-specific conservation of Alaska harbor seals.

In December, NOAA Fisheries and the Alaska Beluga Whale Committee (ABWC) completed a co-management agreement to promote the conservation of the four stocks of beluga whales in Western and Northern Alaska (Beaufort Sea, Eastern Chukchi Sea, Eastern Bering Sea, and Bristol Bay). This formalized a strongly cooperative effort that began in 1988 when ABWC was founded.

Species Harvested for Subsistence

Bowhead Whales

At the 1997 IWC Annual Meeting, the IWC approved a five-year subsistence take quota of bowhead whales (*Balaena mysticetus*), based on a joint proposal by the U.S. (on behalf of Alaska Eskimos) and the Russian Federation (on behalf of Chukotka Natives). For the years 1998-2002, the total bowhead whale quota is set at 280. The number of bowhead whales struck in any of these years cannot exceed 67, except that up to 15 unused strikes can be carried forward and added to the strike quotas of any subsequent year. NOAA Fisheries works cooperatively with the Alaska Eskimo Whaling Commission to monitor the bowhead whale subsistence harvest. In 1999, the subsistence harvest of bowhead whales by Alaskan Eskimos reached 47 strikes, resulting in 42 whales landed. In 2000, the subsistence harvest of bowhead whales by Alaskan Eskimos reached 47 strikes, resulting in 35 whales landed. (See Table 1 below.)

Table 1. Bowhead Whale Takes by Alaska Natives

Year	Harvested	Struck/Lost	Total
1992	38	12	50
1993	41	11	52
1994	34	12	46
1995	43	14	57
1996	38	5	43
1997	48	18	66
1998	41	13	54
1999	42	5	47
2000	35	12	47

Gray Whales

At its 1997 meeting, the IWC approved, by consensus, a five-year block quota of 620 gray whales (*Eschrichtius robustus*), with an annual cap of 140 animals. The quota was a joint proposal by the U.S. and the Russian Federation

and was based on an aboriginal subsistence harvest of an average of four gray whales a year for the Makah Indian Tribe combined with an average of 120 gray whales per year for the Russian natives of the Chukotka region.

In 1999 and 2000, the U.S. Government issued the Makah Tribe annual quotas, and the Tribe managed and oversaw the hunt in accordance with its Management Plan. In May 1999, one gray whale was harvested.

In late 2000, NOAA Fisheries set the Makah Tribe's quota at zero, pending completion of a new environmental analysis under the National Environmental Policy Act in accordance with a recent appeals court ruling.

Northern Fur Seals

The subsistence harvest of Northern fur seals (*Callorhinus ursinus*) on the Pribilof Islands, Alaska, is governed by regulations published under the authority of the Fur Seal Act and the MMPA. Pursuant to these regulations, NOAA Fisheries publishes a summary, every three years, of the fur seal harvest for the previous three-year period and a projection of the number of seals expected to be taken in the subsequent three-year period to meet the subsistence needs of the Aleut residents on the Islands.

Based on the results of the 1994-1996 harvests and due to responses from the tribal governments on St. Paul and St. George Islands, NOAA Fisheries published a notice establishing the annual harvest ranges on the Pribilof Islands.

As a step toward achieving the maximum utilization of seals harvested for subsistence purposes, the tribal government of St. Paul voluntarily eliminated the "butterfly cut" as a standard method of field dressing harvested seals, and resolved to take only whole animals from the field. The only exceptions to the removal of whole carcasses from the field, as permitted by the tribal government, are:

- 1) those animals taken to accommodate some of the elder residents who are physically unable to butcher whole animals supplied to them by the tribal government and
- 2) those carcasses in which the gall bladder was inadvertently ruptured, thus contaminating some of the meat with bile. This practice began with the 1995 harvest, and during 1998 only one butterfly cut seal was taken from the field under these exceptions. The butterfly cut was never a standard field dressing method on St. George Island; therefore, removing only whole carcasses from the harvesting field is now a uniform practice in the Pribilofs.

In cooperation with the tribal governments of St. Paul and St. George Islands and the Pribilof Islands Stewardship Program, NOAA Fisheries continues to make significant progress toward "full utilization" of the animals taken in the subsistence harvest through the development and reestablishment of traditional art and handicraft skills.

NOAA Fisheries continued to monitor the entire harvest on St. Paul Island and a portion of the harvest on St. George Island during the 1999 and 2000 seasons. In 1999-2000, NOAA Fisheries and the local governments estimated 2000-2002 harvest levels, and NOAA Fisheries published these draft estimates along with a summary of the 1997-1999 harvests in the *Federal Register* in August 2000 for public review and comment. No comments were received on the draft estimates. (See Table 2 below.)

Table 2. Northern Fur Seal Harvests for 1997-1999

Year	Number	Location	Subtotal
1997	227 1,153	St. George Island St. Paul Island	1,380
1998	256 1,297	St. George Island St. Paul Island	1,553
1999	193 1,000	St. George Island St. Paul Island	1,193

Harbor Seals

The Alaska Native Harbor Seal Commission (ANHSC), formed in May 1995, is a tribal consortium comprised of Native communities within the habitat range of the harbor seal (*Phoca vitulina*) off the coast of Alaska. The goal of the ANHSC is to strengthen and increase the role of Alaska Natives in resource policy and decisions affecting harbor seals and their uses.

In early 1998, the NOAA Fisheries Alaska Regional Office entered into negotiations with the ANHSC on an agreement, under section 119 of the MMPA, for the conservation and co-management of harbor seals in Alaska. The primary purpose of the co-management agreement on harbor seals was to set forth an operational structure for the conservation and management of harbor seals in Alaska between the ANHSC and NOAA Fisheries. The agreement, which was concluded in April 1999, outlined a consensus-based operational structure, or co-management committee, comprised of three representatives from NOAA Fisheries and three representatives from the ANHSC. This committee was responsible for implementing the co-management agreement and for developing and implementing an annual action plan for harbor seal conservation.

The goals of the agreement are to:

- 1) develop an Annual Action Plan for conservation of Alaska harbor seal populations and the co-management of subsistence uses of harbor seals in Alaska. The Annual Action Plan will address population monitoring, harvest management, education, and other recommendations
- 2) promote the sustained health of harbor seals in order to protect the culture and way of life of Alaska Natives who rely on the harvest of harbor seals for subsistence uses
- 3) promote scientific research and the collection of data, including the traditional knowledge of Alaska Natives, in order to facilitate management decisions concerning harbor seals in Alaska
- 4) identify and resolve, as early as possible, through a consultative process, any management conflicts that may arise associated with Alaska harbor seals and
- 5) provide information to subsistence hunters and the public at large, as a means of increasing the understanding of the sustainable use, management and conservation of harbor seals.

During 2000, analysis of genetic information indicated that limited movement of harbor seals among haul-out sites in Alaska has resulted in fine-scale population structuring. These analyses were presented to the Alaska Scientific Review Group in November 2000, and NOAA Fisheries scientists have initiated the process of publishing their findings in the scientific literature. NOAA Fisheries and the ANHSC have initiated discussions within the co-management committee regarding informing the affected public about these findings and are beginning to develop a conservation program that would promote the objectives of the co-management agreement, which are consistent with the goals of the MMPA.

NOAA Fisheries completed and signed a cooperative agreement on June 13, 2000 between NOAA Fisheries, NOAA Fisheries Alaska Regional Office, and the Tribal Government of St. Paul Island to co-manage Steller sea lions and Northern fur seals on St. Paul Island, Pribilof Islands. The agreement established a co-management council whose responsibilities include the development of local management plans for fur seals, sea lions, and their associated haul-out and rookery areas.

Steller Sea Lions

An interim Alaska Native Steller Sea Lion Commission was formed in 1994. The commission was to consist of representatives from Alaska communities that take Steller sea lions (*Eumetopias jubatus*) for subsistence

needs and was formed to improve communication among these indigenous communities, to advocate for conservation of Steller sea lions, to advocate for protection of customary and traditional rights of indigenous peoples with regard to access and use of sea lions, and to serve as the focal point for development of cooperative agreements with NOAA Fisheries. No substantial progress was made during 1995-1996 in establishing a functioning commission, or in the adoption of hunting guidelines originally proposed by Native hunters.

In May 1997, the Aleutian/Pribilof Islands Association and the Alaska Department of Fish and Game (ADFG), through partial funding from NOAA Fisheries, sponsored a meeting in Dutch Harbor to address the need for a permanent and effective Alaska statewide commission. Those in attendance agreed on the need for such a commission and discussed how it might relate to a regional marine mammal commission, considering that the highest level of subsistence take of Steller sea lions occurs in the Aleutian and Pribilof Islands, and that the species was recently listed as endangered in its Western range. After some discussion, the representatives agreed that regional concerns could be most effectively addressed by a statewide commission. It was also determined, however, that the efforts of the Aleutian and Pribilof Islands communities would be primarily focused on the establishment of a regional commission leaving the task of the statewide commission to others already involved with the initiative.

Accordingly, representatives from Alaska Native communities in the Aleutian and Pribilof Islands region formed a regional marine mammal commission. The purpose of this commission is to address management and other concerns regarding those marine mammal species, including Steller sea lions, taken by these communities for subsistence use. Interim co-chairs were appointed, and it was agreed that bylaws would be drafted and circulated to the respective tribal governments for review and approval. Upon the development of a final draft, a subsequent meeting will be convened to ratify the bylaws and elect officers of the commission.

NOAA Fisheries and the Tribal Government of St. Paul worked in 1998 to develop a cooperative agreement for the co-management of Steller sea lions on St. Paul Island. The draft underwent further development in 1999. Also in 1998, the Alaska Sea Otter Commission actively began taking up Steller sea lion advocacy and began discussions with NOAA Fisheries regarding subsistence harvest and conservation issues of sea lions for other parts of Alaska. Subsequently, the Sea Otter Commission has added Steller sea lions to its responsibilities and has changed its name to the Alaska Sea Otter and Steller Sea Lion Commission. NOAA Fisheries is currently working with the Commission, the Aleut Marine Mammal Commission and the Tribal Government of St. Paul to develop a long-term cooperative management program for Steller sea lions.

Under section 10(e) of the ESA and section 101(b) of the MMPA, prohibitions on the taking of threatened and endangered species normally do not apply to takings by Native Alaskans if such taking is primarily for subsistence purposes and if such taking will not adversely affect the recovery of the endangered stock. To date, no action either under the ESA or the MMPA has been taken to regulate, or otherwise manage, the subsistence harvest of Steller sea lions by Alaska Native groups.

In September 1995, NOAA Fisheries contracted with ADFG to sample tissues from the subsistence harvest of Steller sea lions and to increase educational efforts in three Alaska Native communities known to have high annual subsistence harvest levels (St. Paul Island, St. George Island, and Unalaska). Sampling of killed animals involved collection of tissues to determine age, sex, genetic composition, physical condition, reproductive history, and exposure to anthropogenic contaminants (see Chapter 3-- Health and Stranding Response). Educational efforts were intended to increase Native awareness of the plight of the Steller sea lion and to encourage local management of the subsistence harvest. The contractor, in association with the NOAA Fisheries Alaska Regional Office, held community workshops to discuss Steller sea lion recovery efforts and to inform hunters of the tissue collection project. This project was continued during 1997-1998, and project reports are available (see Table 3 for a summary of the harvest). The subsistence project did not continue field work in 1999-2000.

Table 3. Steller sea lion take by Alaska Natives

Year	Harvested	Struck/Lost	Total
1992	370	119	489
1993	348	139	487
1994	336	80	416
1995	307	32	339
1996	145	30	175
1997	154	18	172
1998	128	43	171
1999	—	—	—
2000	—	—	—

Beluga Whales

Statewide Subsistence Harvest

The Alaska Beluga Whale Commission (ABWC) was formed in 1988 to promote healthy populations of beluga whales (*Delphinapterus leucas*) in Alaskan waters, to obtain better harvest information and to encourage better communication between beluga hunters, biologists, and agencies. Since its formation, the ABWC has met annually to compile reliable harvest information on beluga whale takes by Alaska Natives (see Table 4). Hunters from approximately 50 villages belong to the ABWC and report annual harvest numbers. In 1999, ABWC and NOAA Fisheries formalized a long history of cooperation through the completion of a co-management agreement.

Cook Inlet Harvest

The CI belugas are a small, geographically isolated remnant population of whales. The Cook Inlet population of beluga whales is separated from other beluga populations by the Alaska Peninsula.

Despite being geographically isolated for possibly thousands of years, the CI belugas appear to have maintained a relatively high level of genetic diversity, leading researchers to believe that this population remains viable. Unfortunately, the geographic isolation of these whales, in combination with their tendency toward site fidelity, makes them vulnerable to subsistence harvests by Alaska Natives and from anthropogenic and environmental hazards. The population declined by 15% per year between 1994 and 1998. The 1998 aerial survey estimate (347) was nearly 50% lower than the 1994 estimate (653).

NOAA Fisheries, in conjunction with the ABWC and the Cook Inlet Marine Mammal Council, initiated a status review of CI beluga whales in November 1998 to determine whether designation under the MMPA or a change in listing classification under the Endangered Species Act (ESA) is warranted. Additional information related to the status of CI beluga whales is included in the discussion of belugas in the overview of Conservation and Recovery Programs.

When it passed the emergency supplemental appropriations bill in April 1999, Congress included a provision to address the harvest of CI beluga whales. The provision prohibited the harvest of CI beluga whales except as authorized under a co-management agreement pursuant to section 119 of the MMPA, and it had an expiration date of October 1, 2000. This provision allowed temporary protection for this stock of beluga whales during the period when NOAA Fisheries followed the formal procedures under the MMPA to establish long-term harvest limits. No such agreement was negotiated in 1999; therefore, Alaska Natives did not hunt CI belugas in 1999. NOAA Fisheries and the Cook Inlet Marine Mammal Council negotiated and concluded such an agreement

for a harvest of a single whale in 2000 by the Native Village of Tyonek; however, no hunt was conducted in 2000.

Following the designation of CI beluga whales as depleted in June 2000, NOAA Fisheries proposed a rule to regulate subsistence harvest of these beluga whales to provide long-term conservation for the stock. As required by the MMPA, NOAA Fisheries scheduled a formal hearing before Administrative Law Judge Parlen McKenna in early December. Parties at the hearing included the Cook Inlet Treaty Tribes, the Native Village of Tyonek, Joel and Debra Blatchford, the Alaska Oil and Gas Association, Trustees for Alaska, the Marine Mammal Commission, and NOAA Fisheries. By the end of the hearing, the parties had agreed in principle to limit harvest from 2001-2004 to a total of six strikes. The proposed agreement would allow one strike per year to the Native Village of Tyonek and an additional two strikes over the four-year period (no more than one in any given calendar year) to other Native hunters in the CI area.

In December 2000, it was apparent that long-term harvest regulations would not be completed by the spring of 2001 under the formal procedure required by the MMPA. When Congress passed appropriations for FY 2001, it extended the requirement for a co-management agreement to authorize the harvest of CI beluga whales. The provision, which was passed by Congress in late December 2000, removed the expiration date from the limitation that was included in the 1999 legislation. Thus, the requirement for a co-management agreement for the subsistence taking of CI beluga whales became permanent. At the end of 2000, NOAA Fisheries and the other parties to the formal hearing continued to work toward long-term harvest regulations that would allow a subsistence harvest to continue while the CI beluga stock recovered from depletion.

Table 4. Beluga Whale Harvest Data from Western Alaska

	Landed (struck/lost)	
	1998	1999
Beaufort Sea Stock	59 (6)	35 (10)
Eastern Chukchi Sea Stock	91 (5)	52 (0)
Eastern Bering Sea Stock	143 (27)	134 (25)
Bristol Bay Stock	6 (1)	17 (4)
Total	299 (39)	238 (39)

international activities

Under Section 108(a)(1) of the Marine Mammal Protection Act (MMPA), the Secretary of Commerce is mandated to:

"... initiate negotiations as soon as possible for the development of bilateral or multinational agreements with other nations for the protection and conservation of all marine mammals covered under this Act."

As a result, the Departments of Commerce, Interior and State, in consultation with the Marine Mammal Commission, must pursue international agreements and negotiate new agreements to achieve the purposes of the MMPA. This chapter describes NOAA Fisheries involvement in international programs and activities pertaining to marine mammals during 1999 and 2000.

International Whaling Commission (IWC)

The International Convention for the Regulation of Whaling (ICRW) was established in 1946 with the objective of achieving proper conservation of world whale stocks, thus making possible the orderly development of the whaling industry. The Convention created the International Whaling Commission (IWC) to provide for a continuing review of the condition of whale stocks and of the agreed conservation measures. In the U.S., the treaty is implemented through the Whaling Convention Act of 1949.

Past actions by the IWC include the establishment of a whale sanctuary in the Indian Ocean and in the Southern Ocean, prohibition on the use of non-exploding harpoons to kill whales for commercial purposes, a moratorium on all commercial whaling that took effect in 1986, and the adoption of a separate and distinct management scheme for aboriginal subsistence whaling.

In 1997, in an attempt to resolve some of the long-standing challenges to the IWC's ability to control commercial whaling, the Irish Government introduced a proposal to establish a whale sanctuary in the high seas, in exchange for allowing the resumption of limited coastal commercial whaling. The proposal remains under discussion.

Commercial and Scientific Whaling

The IWC continues to maintain the moratorium on commercial whaling. However, Norway lodged an objection to the 1982 moratorium decision, and



therefore is not bound by that decision. Thus, it continues to take minke whales (*Balaenoptera acutorostrata*) from the Northeast Atlantic Ocean. The IWC has passed several resolutions condemning Norwegian whaling outside the IWC.

Article VIII of the ICRW grants countries the right to issue permits to kill whales for scientific purposes. Japan takes approximately 540 minke whales annually for research. Japan's research program is opposed by the IWC, which has passed several resolutions urging Japan to discontinue its program.

In April 2000, Japan announced its intention to expand its scientific research whaling program in the North Pacific to include the lethal take of two additional species- sperm whale (*Physeter catodon*) and Bryde's whale (*Balaenoptera edeni*). The United States and fifteen other countries oppose the expansion of the program and have proposed that Japan discontinue this program and explore non-lethal means of gathering the data.

On September 13, 2000, Secretary of Commerce Mineta certified under the Pelly Amendment to the Fishermen's Protection Act of 1967 (Pelly Amendment) that Japan's expansion of its scientific whaling program was undermining the effectiveness of the IWC. As a result of this certification, the Pelly Amendment required that the President consider imposing import prohibitions and report to Congress within 60 days of this certification. In his December 29, 2000 Report to Congress, the President noted that he did not believe that import prohibitions would further U.S. objectives at this time. The President directed agencies to keep this issue under active review and to identify potential candidates for import restrictions.

Aboriginal Subsistence Whaling

Aboriginal subsistence whaling, in accordance with limitations set by the IWC, is conducted by aboriginal Natives in Greenland, Russia, St. Vincent and the Grenadines, and the United States. In addition, although not currently an IWC member, Canada has continued to authorize the taking of bowhead whales (*Balaena mysticetus*) by its Natives.

At the 1997 Annual Meeting, the IWC approved a combined quota of bowhead whales to meet the needs of the Eskimos in Alaska and Russia which allows an average of 56 bowhead whales to be landed each year. The Alaska Eskimos have been conducting aboriginal subsistence hunts with approval of the IWC since the IWC began regulating such hunts in the 1970s. At the 1997 Annual Meeting, the IWC also adopted a quota that allows a five-year aboriginal subsistence hunt of an average of four gray whales a year by the Makah Indian Tribe, combined with an average annual harvest of 120 gray whales by Russian natives of the Chukotka region. NOAA Fisheries recently set the quota for the Makah Tribe at zero, pending completion of analysis under the National Environmental Policy Act (NEPA) in accordance with an appeals court ruling.

Further information on subsistence hunting by U.S. natives can be found in Chapter 8- Native Take.

1999 Annual Meeting

The 51st Annual IWC Meeting was held in St. George's, Grenada, from May 24-28, 1999. The U.S. led the passage of several resolutions, including one reaffirming the cooperation between the IWC and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and requiring the IWC Secretariat to advise the CITES Secretariat that the IWC has not yet completed a revised management regime that ensures that future commercial whaling catch limits are not exceeded and that whale stocks can be adequately protected. In a surprise move, Japan submitted draft text for a Supervision and Control Scheme, one of the uncompleted elements of the IWC's developing Revised Management Scheme. The IWC called upon members to submit comments on this text and deferred its consideration until the 2000 annual meeting.

The U.S. Commissioner, Dr. D. James Baker, gave a presentation regarding environmental threats to cetaceans, which led to the IWC's adoption of a resolution providing for increased financial support for the Southern Ocean Whale and Ecosystem Research (SOWER) 2000 and POLLUTION 2000+ research programs. In addition, the IWC adopted by consensus a resolution calling for additional research on the human health effects from the consumption of cetaceans and

for further coordination with the World Health Organization. Other actions in 1999 included the passage of a resolution requiring the Scientific Committee to provide advice on genetic identification methods which would allow tracking under the Revised Management Scheme, a resolution expressing concern over the increased catches of Dall's porpoise in Japanese fisheries, and a resolution encouraging the submission of relevant information to the whale killing methods working group and the development of more accurate time to death indicators. Furthermore, as it has done for the past 11 years, the IWC denied, based on its commercial elements, Japan's request for an interim quota of minke whales for its small-type coastal whalers. Scientific whaling is allowed under the Convention, and Japan is engaged in lethal research on minke whales in the Southern Ocean Sanctuary and in the Western North Pacific. Nonetheless, the IWC has concluded that these programs are contrary to its conservation goals, and in 1999, passed a resolution condemning these lethal scientific whaling programs.

2000 Annual Meeting

The 52nd annual IWC meeting was held in Adelaide, Australia, from July 3-6, 2000. The U.S. supported the passage of several resolutions, including two resolutions that were passed urging Japan to refrain from issuing permits to take whales for scientific purposes in both the Northern Pacific and the Southern Ocean. The former specifically criticized Japan's proposal to expand its scientific whaling program in the North Pacific to include the take of sperm and Bryde's whales in addition to its lethal research on minke whales in the Southern Ocean Sanctuary and in the North Pacific. The IWC has concluded that these programs are contrary to its conservation goals, and has repeatedly passed resolutions condemning these lethal scientific whaling programs.

The IWC considered draft language for a Supervision and Control Scheme and discussed its relation to the development of draft text for the overall Revised Management Scheme. The United States supported a consensus resolution calling for an intersessional meeting to make additional progress on the Revised Management Scheme and supported a highly publicized proposal by Australia and New Zealand to establish a South Pacific Whale Sanctuary. The Sanctuary proposal did not pass, but is expected to be raised again in the future.

As it has done for the past twelve years, the IWC denied, based on its commercial elements, Japan's request for an interim quota of minke whales for its small-type coastal whalers. A separate resolution was passed that called upon IWC members to work expeditiously to provide such a quota in the future.

Other actions in 2000 included the passage of a resolution calling upon Canada (a non-IWC nation) to refrain from issuing subsistence quotas for highly endangered bowhead whales, a resolution reiterating the need for the IWC to examine the effects of environmental change on cetaceans, a resolution in support of the protocols on Persistent Organic Pollutants and heavy metals, and resolutions on protecting freshwater cetaceans and North Atlantic right whales.

The 53rd IWC meeting will be held in London in July 2001.

Convention on International Trade in Endangered Species of Wild Fauna and Flora

The 11th Meeting of the Conference of the Parties (COP11) to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was convened April 10-20, 2000 in Nairobi, Kenya. Following is a brief description of agenda items and outcomes. All votes required a 2/3 majority of those voting for passage. Secret ballots were individually requested for each vote described below.

Resolutions

Consolidation of cetacean resolutions. The Secretariat, at the Parties request, prepared a text consolidating previous resolutions on cetacean conservation and trade and on CITES' relationship with the IWC. Japan and Australia opposed the consolidation. The resolution passed 41 for, 5 against, 31 abstentions.

Relationship with IWC and CITES. Japan and Norway submitted a resolution on CITES' relationship with the IWC, to set the stage for their downlisting proposals. The U.S. countered with its own resolution confirming cooperation between the two bodies. After inconclusive debate in Committee II, the chairman postponed voting on the resolutions. The issue was not taken up again until after the whale downlisting proposals had been defeated in Committee I. The Japanese/Norwegian resolution was defeated by a vote of 31 for, 49 against, with 10 abstentions. The U.S. then withdrew its resolution, stating that the previous votes in both committees adequately reinforced the cooperative relationship.

Changes to the CITES appendices

Black Sea bottlenose dolphin. The U.S. and Georgia submitted a proposal to move this population from Appendix II to Appendix I, thus prohibiting commercial trade. The proposal was encumbered by the failure of Georgia to attend the COP. The U.S. withdrew the proposal in favor of a referral to the Animals Committee to examine several issues (including the effect of international trade on the population and whether the sub-species is distinct) before the next COP. Trade in Black Sea bottlenose dolphin was considered at the 16th

Meeting of the CITES Animals Committee, December 11-15, 2000, in Shepherdstown, West Virginia. At the meeting, a "contact group" was constituted to consider this issue by correspondence until the next meeting of the Animals Committee.

Several species of whales were proposed for downlisting from Appendix I to Appendix II of CITES. This action would re-open international commercial trade in whales. The following are outcomes in voting for populations/stocks of these species.

Eastern North Pacific gray whales. Japan proposed to transfer this population from Appendix I to Appendix II. The debate centered on arguments of principle: whether CITES should postpone downlisting of whale populations until the IWC completes a management scheme to monitor commercial harvest of whales. The U.S. strongly opposed all four proposals to downlist whale populations, based on the IWC's continuing moratorium on commercial whaling. In a secret ballot, the proposal was defeated by a vote of 40 for, 63 against, 6 abstaining.

Southern Hemisphere minke whales. Japan proposed to transfer these whales from Appendix I to II, but added an amendment, in the form of an annotation, that trade would be allowed only between Parties with a method of DNA identification of specimens in trade. Suriname offered a confusing amendment that would have set a zero quota until COP12, after which "it is expected" that the IWC would have made a decision about its management scheme. The first secret ballot was on the proposal as amended by Japan, which was defeated by a vote of 46 for, 69 against, and 4 abstaining. In probable violation of the rules of procedure, the Suriname amendment to a defeated proposal was itself defeated by a secret vote of 47 for, 66 against, 5 abstaining.

Okhotsk Sea-West Pacific stock of minke whales. Another Japanese proposal for downlisting from Appendix I to II was defeated, without debate, by a secret vote of 49 for, 67 against, 3 abstaining.

Northeast Atlantic and North Atlantic Central stocks of minke whales. Norway proposed to transfer these stocks from Appendix I to II. This proposal was considered twice by the COP- first in Committee I and again in plenary. In Committee I, the proposal was defeated in a secret vote of 52 for, 57 against, and 9 abstentions. Norway proposed its consideration plenary, with an amendment to limit trade to products from animals taken within areas of national jurisdiction (where the Norwegian hunt is now conducted), and to limit trade to countries with DNA-based identification systems for trade control. Norway achieved its purpose in achieving a simple majority, by a secret ballot of 53 for, 52 against, 8 abstaining.

The next CITES Conference of Parties will be held in Santiago, Chile in November 2002.

Additional International Efforts

During 1999-2000, NOAA Fisheries also pursued additional opportunities for international efforts and agreements. Chapter 7- Dolphin/Fishery Interactions in the Eastern Tropical Pacific- outlines initiatives related to wild dolphin interactions with the Eastern Tropical Pacific Tuna Purse Seine Fishery. Chapter 10- Education and Outreach- addresses international steps undertaken related to NOAA Fisheries' efforts to minimize harassment to wild marine mammals from human recreational activities. Chapter 3- Health and Stranding Response- outlines the Marine Mammal Health and Stranding Response Program's initiatives. Finally, NOAA Fisheries staff attended numerous scientific and professional meetings and promoted information sharing with colleagues abroad to improve upon the continued protection of wild marine mammals.

education and outreach

NOAA Fisheries and its programs affect a variety of people, including fishers, wildlife managers, conservationists, policy-makers, and the general public. Education and outreach is therefore a critical tool in conveying NOAA Fisheries' messages and allows public access to information about federal policies and initiatives. Whether it be holding public meetings, participating in school and community outreach programs, or improving the NOAA Fisheries worldwide website, NOAA Fisheries works hard to ensure its constituents are not only able to access information important to their interests, but also learn about the vast wonders of the resources that NOAA Fisheries works to protect. This chapter outlines select NOAA Fisheries education and outreach efforts throughout its headquarters and regional offices.

Headquarters, Office of Protected Resources

MMPA Bulletin

The *MMPA Bulletin* is a quarterly publication designed to increase public awareness of the Marine Mammal Protection Act (MMPA) legislative, regulatory, and implementation processes. The first edition, published in September 1994, included a description of the MMPA Amendments of 1994, and subsequent editions have focused on NOAA Fisheries' efforts to implement the amendments and other aspects of the MMPA. The *MMPA Bulletin*'s readership consists mostly of commercial fishers and representatives of the environmental and marine mammal science communities, as well as state and federal agencies dealing with protected species issues, Alaska Native organizations, public display facilities, and Congress.

The *MMPA Bulletin*'s readership has increased from approximately 1,800 in 1996 to almost 4,000 subscribed readers in 2000. Although the vast majority of the readership is in the U.S., international interest in the *Bulletin* has greatly increased in recent years illustrating the worldwide interest in marine mammal conservation issues. NOAA Fisheries has also worked to publicize the availability of the *MMPA Bulletin* by posting announcements of each issue on key Internet listservers, such as "MARMAM", "WILDLIFE HEALTH", and "FISHFOLK". The *MMPA Bulletin* can also be found on the Office of Protected Resources website at:

http://www.nmfs.noaa.gov/prot_res/prot_res.html



NOAA Fisheries staff and volunteers working with marine mammals at a public display facility.

Web-based Outreach

During 2000, NOAA Fisheries Office of Protected Resources (OPR) redesigned its world wide website to be more user friendly and provide additional on-line resources to its constituents. The effort has been successful, as the OPR site is the third most visited NOAA site and the most visited NOAA Fisheries website. Constituents can now access information on NOAA Fisheries reports, legislative histories, species specific descriptions, and program information relating to marine mammals, endangered species and marine biodiversity at:

http://www.nmfs.noaa.gov/prot_res/prot_res.html

Workshops – Obtaining A Marine Mammal and/or Endangered Species Permit

Sections of the NOAA Fisheries Office of Protected Resources worked cooperatively to conduct workshops for scientists working with species protected under the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) or both in combination.

In April 2000, a workshop was held at the NOAA Fisheries' Northeast Fisheries Science Center in Woods Hole, Massachusetts and focused on regulations governing taking of marine mammals and birds further into the Northeast Atlantic Ocean. In November 2000, a



*permits workshop:
NOAA Fisheries
file photo*

workshop was held in Austin, Texas at the Third Conference on Partnership Opportunities for Federally Associated Collections, hosted by the Texas Association of Museums. As part of the course entitled: "Permit Me: Federal permits, international conventions, and the management of Federally-associated collections," the workshop focused on laws and regulations affecting the collection, transportation, possession and use of marine mammal and endangered species specimens in museum collections.

Additionally, in November 2000, OPR staff participated in a meeting sponsored by the Alaska Sealife Center (ASLC), Seward, Alaska. The meeting attendants included researchers from Federal and State government agencies, universities and aquaria. ASLC receives Federal funds to conduct research that will assist with the management of Steller sea lions. The workshop focused on three areas: (1) most appropriate capture and transport techniques; (2) veterinary, husbandry and quarantine issues for temporary maintenance; and (3) research design and justifications. The workshop covered all aspects of review, related laws and regulations, and coordination among researchers required to minimize cumulative effects of multiple activities on the same species.

Outreach for Commercial Fishing and Shipping Industries

From OPR headquarters, a number of educational efforts have focused on working with the fishing and shipping industries to reduce marine mammal mortality as well as promote the mandatory reporting requirements of these mortality events. In addition to the regional initiatives outlined in this chapter, NOAA Fisheries also: (1) conducted a "Marine Aquaculture, Marine Mammals, and Marine Turtles Interactions Workshop" in January 1999; (2) distributed 1,000 laminated Handling/Release Guidelines for Pelagic Longline Gear to Southeast Region fishermen; (3) regularly distributed brochures on Northern right whales and ship strikes; (4) developed a one-page laminated brochure regarding the Northern right whale Mandatory Ship Reporting System (MSR) and distributed information to shipping companies regarding complying with the MSR; and (5) developed a website devoted to the MSR on the NOAA Fisheries website.

Partnership with the "Watchable Wildlife" Program

During 1999 and 2000, the NOAA Fisheries OPR continued to build upon its relationship with the Watchable Wildlife (WW) program. This is a unique partnership between federal, state and environmental groups that have been promoting safe and responsible wildlife viewing guidelines for over a decade. Organizations that have signed the WW Memorandum of Understanding include the U.S. Fish and Wildlife Service, the U.S. Forest Service, the National Park Service, Audubon Society, Defenders of Wildlife, National Wildlife Federation, and other wildlife interest groups. The WW produces public education and outreach materials to teach people how to responsibly and respectfully view wildlife, including an informative state guidebook series that highlights places to view wildlife while educating the public as to why it is harmful to closely approach, disturb, and feed wild animals.

The WW has also developed guidelines on how to view wildlife to help protect the safety and well-being of both wild animals and people, such as: viewing wildlife from a safe distance and using binoculars for a "close look"; staying clear of nests, dens and rookeries; and never touching or feeding wild animals. Although the WW has historically focused on terrestrial species of wildlife, the WW's viewing etiquette and stewardship principles also directly apply to marine species.

During 1999 and 2000, NOAA Fisheries participation has broadened the WW to focus efforts on marine species, and provided an opportunity to enhance NOAA's education and outreach efforts on responsible wildlife viewing in the marine environment, including addressing persistent problems such as: (1) people closely approaching, feeding and disturbing marine mammals, sea turtles, sea birds and fish; and (2) engaging in harmful boating and diving/ snorkeling practices that damage coral reef, sea grass, and other marine resources.

NOAA Fisheries' Efforts to Promote Responsible Marine Wildlife Viewing

Viewing marine mammals in their natural habitat can be an educational and enriching experience if conducted safely and responsibly. However, when conducted irresponsibly, these activities can disturb the animals (*i.e.*, cause "harassment") and place their health and welfare at risk. There are also significant public safety considerations as people have been seriously injured while trying to interact with wild marine mammals. The distinction between "viewing" vs. "interacting" with wild marine mammals needs to be made clear to the public, an effort that NOAA Fisheries has been pursuing for over a decade.

From a biological and management standpoint, the harassment of wild marine mammals by members of the public continues to be a concern. Specifically, efforts by the public to closely approach, pet, touch, feed, swim with or otherwise interact with wild cetaceans, seals and sea lions can cause "harassment" of the animals, which is illegal under the MMPA. The MMPA prohibits the "take" of marine mammals which is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." Section 3(18)(A) of the MMPA defines the term "harassment" as "any act of pursuit, torment, or annoyance which -

- 1) Level A Harassment- has the potential to injure a marine mammal or marine mammal stock in the wild, or
- 2) Level B Harassment- has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering."

The MMPA does not provide exemptions to the "take" prohibition for viewing or interacting with wild marine mammals. Therefore, interacting with wild marine mammals should not be attempted, and viewing marine mammals must be conducted in a manner that does not "harass" or "take" the animals.

NOAA Fisheries has attempted to address this issue through education and regulatory actions, such as:

- 1) issuance of regulations prohibiting: (a) feeding or attempting to feed wild cetaceans, seals and sea lions; (b) negligent or intentional operation of an aircraft or vessel, or the doing of any other negligent or intentional act which results in disturbing or molesting a marine mammal; (c) approaching humpback whales closer than 100 yards in Hawaii and Alaska (The Alaska regulations goes into effect on July

2, 2001.); and (d) approaching Northern right whales closer than 500 yards in U.S. waters of the North Atlantic.

- 2) developing guidelines to educate the general public on how to responsibly view marine mammals in the wild without causing harassment
- 3) continuing the "Protect Dolphins" campaign (launched in 1997) to educate the public about the specific concerns with closely approaching, feeding or swimming with wild dolphins
- 4) joining the Watchable Wildlife Program (see description on page 78)
- 5) conducting enforcement actions that can give strong support to the existing regulations and educational efforts. However, additional resources for enforcement and litigation are needed to fully address this issue.

Documented Impact of Human Interactions on Marine Mammals in the Wild

MMC Pilot study: In 1998, NOAA Fisheries and the Marine Mammal Commission (MMC) contracted with scientists from the Woods Hole Oceanographic Institute and the Chicago Zoological Society to evaluate the effects of habitual interactions between humans and wild dolphins near Panama City, Florida. (Samuels and Bejder, 1998) The research documented significant differences in the behavior and ranging patterns of wild dolphins habituated to humans versus wild dolphins not habituated to humans. The researchers concluded that human interaction is likely to be detrimental to wild dolphins, and that virtually all interactions between humans and wild dolphins in the Panama City area are based on illegal food provisioning.

MMC Literature Review: In follow-up to the pilot study, the MMC sponsored a literature review entitled, *A Review of the Literature pertaining to Swimming with Wild Dolphins* (Samuels *et al.* 2000), to evaluate scientific information regarding human interactions with marine mammals in the wild. The report concluded that: lone, sociable cetaceans are particularly vulnerable to human activities and harassment; food-provisioned cetaceans should be protected by enforcement of the regulations which already prohibit feeding or attempting to feed wild marine mammals; and despite the lack of scientific data on the effects of human interactions on both habituated and unhabituated animals, there is a clear risk of harassment from such activities. Unhabituated dolphins in particular are disturbed by humans attempting to interact with them (e.g., Hawaiian spinner dolphins).

Examples of Activities of Concern



*dangerous interactions:
NOAA Fisheries file photo*



*illegal feeding of wild
dolphins. L. Bejder*

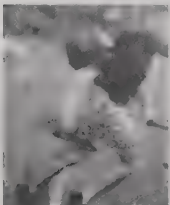


*too close to resting seals
NOAA Fisheries file photo*

As a result of the studies by Samuels and Bejder (1998) and Samuels *et al.* (2000), the MMC concluded that there is "compelling evidence that any efforts to interact intentionally with dolphins in the wild are likely to result in at least Level B harassment and, in some cases, could result in the death or injury of both people and marine mammals." The MMC therefore recommended to NOAA Fisheries that it "promulgate regulations specifying that any activity intended to enable in-water interactions between humans and dolphins in the wild constitutes a taking and is prohibited" (Letter from MMC to NOAA Fisheries dated May 23, 2000).

NOAA Fisheries believes that these concerns apply equally to all species of whales, dolphins, porpoises, seals and sea lions. A recommendation to restrict swimming and diving with whales was made at a 1988 workshop on whale watching sponsored by the Center for Marine Conservation and NOAA Fisheries, and there is a growing body of scientific literature, news articles, and complaints from the public about the disturbance of sea lions, harbor seals, elephant seals and Hawaiian monk seals from people closely approaching the animals either on foot or by water vessels (e.g., motor-powered, canoe, and kayak), or by touching, petting, and throwing objects at the animals to elicit a reaction.

In addition to animal health and welfare concerns, there are significant public safety concerns regarding human interactions with wild marine mammals. Several people have been injured while trying to feed, swim-with, pet or otherwise interact with wild marine mammals, and in one case a dolphin killed a swimmer who was harassing the animal (see Santos, 1997).



Education and Outreach Efforts to Promote Responsible Viewing

NOAA Fisheries' efforts to address the ongoing conflict between human recreational activities and harassment of wild marine mammals have focused mainly on educational initiatives. Over the past decade, NOAA Fisheries has initiated many educational projects and outreach efforts to teach the public about the dangers of closely approaching marine mammals in the wild. Many of these efforts have resulted in an increased public awareness of the issue and, in many cases, actions by the public to curb their potentially negative and harmful activities.

In 1999 and 2000, NOAA Fisheries continued education and outreach efforts to inform the public about safe and responsible viewing practices to observe marine

mammals in the wild. These efforts were conducted by both NOAA Fisheries staff biologists and enforcement personnel who worked to achieve voluntary compliance by the public with the NOAA Fisheries guidelines and regulations for viewing marine mammals in their natural habitats.

NOAA Fisheries staff continued to work with representatives from WW to incorporate marine mammals and other protected marine species into the program. NOAA Fisheries initiated the formation of a "Marine Species Task Force" comprised of a board member from WW, personnel from NOAA Fisheries and NOAA's National Marine Sanctuaries Program, and marine species experts from the WW program.

Throughout 1999 and 2000, NOAA Fisheries promoted the "Protect Dolphins" campaign to educate the public that feeding and harassing wild dolphins is harmful and illegal under the MMPA (see 1998 MMPA Annual Report). NOAA Fisheries continued to work with scientific researchers, public display facilities, and environmental groups to make the distinction between passive observation and interaction and promote safe and responsible wildlife viewing practices.

For 1999, highlights of education and outreach efforts related to responsible wildlife viewing included:

- 1) issuance of three press releases during the summer to remind the public about the dangers of feeding and harassing wild dolphins in the Southeast – May 28th to kick off the start of summer; July 19th to announce a feeding case enforcement victory; and September 1st to address the Labor Day weekend activities.
- 2) participation in the annual WW conference where NOAA Fisheries staff contributed to a symposium on marine mammal viewing issues and focused on concerns about the public closely approaching, feeding, swimming with and otherwise interacting with wild dolphins in the Southeast
- 3) co-host of a workshop held before the 13th Biennial Conference on the Biology of Marine Mammals that focused on concerns about swimming with wild dolphins
- 4) participation in the annual conference of the International Marine Animal Trainers Association where NOAA Fisheries staff appealed to public display facilities to assist with education and outreach efforts for safe and responsible wildlife viewing practices
- 5) issuance of revised viewing guidelines for marine mammals and sea turtles in Hawaii

- 6) response to media inquiries about the "Protect Dolphins" campaign resulting in feature stories in the *New York Times*, CNN, ABC News, CBS News, BBC Radio, the *Sarasota Herald Tribune*, and the *Atlanta Journal Constitution*
- 7) assistance with the development of the "La Jolla Friends of the Seals" volunteer docent program to educate the public about harbor seals in La Jolla, California and how to view them without causing harassment

For 2000, highlights of education and outreach efforts related to responsible wildlife viewing included:

- 1) development of revised brochures and posters for the "Protect Dolphins - Admire Them From a Distance" campaign
- 2) development and distribution of revised enforcement warning signs specific to feeding and harassment concerns
- 3) issuance of three press releases to remind the public about the dangers of feeding and harassing wild dolphins – May 18th to kick off the start of the summer tourist season and announce a Marine Mammal Awareness Symposium that took place in Ocean City, Maryland July 13th to address concerns about feeding and harassment along the Atlantic coastal states; and November 6th to announce a public meeting in the Venice, Florida area to discuss concerns about the public feeding wild dolphins in the local waterways
- 4) development of docent program with marine mammal experts from the Chicago Zoological Society and Mote Marine Laboratory to address chronic feeding of wild dolphins in the Nokomis (Venice), Florida area
- 5) development of a new web site on viewing protected marine species in the wild that highlights the NOAA Fisheries regional viewing guidelines for marine mammals, the "Protect Dolphins" campaign, and links to information about the WW program and terrestrial wildlife viewing issues

http://www.nmfs.noaa.gov/prot_res/MMWatch/MMViewing.html

- 6) development of interpretive signs (in partnership with NOAA Sea Grant-Hawaii, Hawaii Department of State Parks and the Kula Nāi'a Wild Dolphin Research Foundation) to address

concerns about the public harassing (i.e., closely approaching and attempting to swim with) Hawaiian spinner dolphins in Kealahou Bay while the animals are trying to rest, nurse their young and avoid predators

Outreach Efforts to the Public Display Community

During 1999 and 2000, NOAA Fisheries continued to approach marine mammal public display facilities and wildlife conservation groups to explore ways those organizations could incorporate marine mammal viewing concerns and WW information into their respective programs. In particular, NOAA Fisheries suggested that the public display facilities offering interactive programs (i.e., swimming or wading activities and petting/feeding pools) educate their guests about the dangers of closely approaching, feeding or swimming with marine mammals in the wild and impress upon these guests the distinction between the captive and wild animals. Under Section 104(c)(2)(A) of the MMPA, public display facilities that exhibit marine mammals must offer a program for education or conservation purposes that is based on professionally recognized standards. In 1999, the Alliance of Marine Mammal Parks and Aquariums worked with NOAA Fisheries staff to develop a fact sheet on marine wildlife viewing concerns that was offered to Alliance member organizations and public display facilities at large. Several, but not all, facilities have incorporated wild marine mammal viewing concerns into their programs.



Judge Fines Panama City Boat Rental Company and Operator \$4,500 for Illegally Feeding Dolphins

Federal Administrative Law Judge Parlen McKenna upheld a \$4,500 fine against a Panama City, Florida boat rental company and its boat operator for illegally feeding wild dolphins. The incident occurred during a June 1998 excursion off Panama City's Shell Island and nearby jetty, a destination popular with residents and tourists for feeding the local dolphin population.

NOAA charged Hathaway's Boat Rentals, Inc. and vessel captain Thomas E. Rainelli, with five counts of harassing or attempting to harass wild dolphins by feeding or attempting to feed the animals cigar minnows during a June 17, 1998 parasail boat trip. Hathaway's Boat Rentals, Inc. also sold the minnows that were used to feed the dolphins.

NOAA attorneys originally charged a total of \$5,000 in penalties against four parties involved in the June 17, 1998 violation, but dismissed the case against Tropical Parasail and settled with boat crew member Chanti Hance for \$500. Hathaway's Boat Rentals, Inc. and Thomas Rainelli chose not to settle and pursued the option of the civil hearing.

Ruling from the bench, Judge McKenna called the charges "serious," and upheld the NOAA charges and requested sanction of \$4,500. The judge also ordered Hathaway's Boat Rentals, Inc. to post a federal "no dolphin feeding" sign and a poster on the grounds and counter of its facility. The Hathaway's Boat Rentals, Inc. and Thomas Rainelli were allowed to divide the payment of the \$4,500 penalty at their discretion.

In addition, the judge found that Thomas Rainelli was operating under a U.S. Coast Guard license, and as such, charges were brought against him in a separate proceeding for these violations since he was acting under the authority of his Coast Guard license.

Education and Outreach In NOAA Fisheries Regions

Northeast Region

Outreach activities in the Northeast Region (NER) are integral components of the Atlantic Large Whale Take Reduction Plan (ALWTRP). During 1999-2000, these efforts were designed to encourage fishing industry involvement in the design and testing of gear less likely to entangle whales, alert fishermen to the need for gear modifications and present options for bringing gear into compliance. An additional goal of outreach efforts was involving industry and non-governmental organizations in the whale disentanglement effort.

During 1999-2000, NOAA Fisheries participated in several annual trade shows and Fishermen's forums (Massachusetts Lobstermen's Association's Annual Weekend, Maine Fishermen's Forum, 2000 Fish Expo and Workboat Atlantic) by presenting displays and participating in workshops and seminars. An underwater video was produced showing contrast between floating groundline and neutrally buoyant groundline in lobster gear. This video was distributed to industry organizations and was also shown at the trade shows and forums. Handout materials were generated and distributed describing various techniques that could be used to comply with the gear modifications required by the ALWTRP.

In addition, presentation of these gear modifications as well as NOAA Fisheries' gear research efforts were made to a variety of industry organizations such as Atlantic Offshore Lobstermen's Association, Massachusetts Lobstermen's Association Delegate's meetings, Massachusetts Division of Marine Fisheries Commissioners, Down East Lobstermen's Association, Maine Lobstermen's Association, and Zone Council meetings.

NOAA Fisheries also worked with the shipping industry to raise awareness of the whale strike problem and the legal mandates for protecting whales. One goal of this outreach activity was securing the industry's help in finding ways to decrease the likelihood of ship strikes. NOAA Fisheries hosted a series of meetings at ports along the Atlantic coast to involve a broad base of constituents in the search for solutions. Outreach activities relative to ship strike reduction included regular attendance and presentations at port meetings in Maine, Boston, Providence, Thames River (Connecticut), and New York. Port operators were provided with materials that included right whale brochures, "A Guide for Mariners, Right Whales on the Brink" and placards, "Guidelines for Mariners, Right Whale Mandatory Ship Reporting System." NOAA Fisheries has also contracted with the International Fund for Animal Welfare to hold a series of workshops with the shipping industry and agency representatives to address ship strikes and develop management options during a large workshop to be held in April 2001.

The NOAA Fisheries' NER also established an electronic newsletter, "Whale Plan Update," and a whale plan website which has received more than 4,000 hits to date. The electronic newsletter and website are an effort to communicate on whale protection issues with the ALWTRT and other interested parties. Meetings, agendas, and minutes are posted. The web site also served as a resource for media and the general public interested in whale protection issues. A similar NER website was developed for the Harbor Porpoise Take Reduction Plan.

The NER also distributed a "seal watching guidelines" brochure to help boaters and beach-goers avoid harassing seals. The guidelines set a minimum distance of 50 yards and cautioned seal watchers to be responsible viewers. The brochure also includes a seal identification key and a section on seal facts.

Finally, the NER produced a Critical Sightings Program (CRISP) placard, used by the U.S. Coast Guard and made available to other state and federal agencies, to facilitate more comprehensive and timely reporting of off-shore sightings of right whales, and entangled or dead whales of any species.

The NOAA Fisheries' NER Protected Resources website can be found at:
<http://www.nero.nmfs.gov/ro/doc/whale.htm>

Southeast Region

In 1999 and 2000, the NOAA Fisheries' Southeast Region (SER) continued its support of the Atlantic Large Whale Take Reduction Plan (ALWTRP) through various outreach efforts. In 1999, the region organized a workshop with the Southeastern U.S. Atlantic gillnet fishermen and ALWTRP team members to discuss the plan's requirements and learn about other gillnet fisheries operating in the Southeast Atlantic. SER also sent annual reminder letters to shark gillnetters regarding the ALWTRP requirements. In addition, the region expanded the Disentanglement Network under the ALWTRP by holding training sessions in the mid-Atlantic and Southeast to educate fishermen about proper reporting and operational procedures regarding entangled whales. Also, in 1999, shark gillnet fishermen expressed interest in being a part of the "Early Warning System" (EWS), a network of aerial surveys and various communication media to ensure real-time notification of mariners regarding whale sighting locations and notice of the need to take precautionary measures.

In 2000, NOAA Fisheries' SER and Southeast Fisheries Science Center (SEFSC) worked with Duke Marine Mammal Laboratory to organize a meeting with North Carolina stop net fishermen to discuss future plans for observing their fishery in 2000, including the upcoming Bottlenose Dolphin Take Reduction Team (BDTRT), and conducted preliminary meetings with North Carolina fishers to initiate a dialogue regarding bottlenose dolphin take issues in advance of formation of a formal TRT.

Additionally, NOAA Fisheries worked in cooperation with the North Carolina Division of Marine Fisheries on two separate mailings of reminder letters to North Carolina Category I and II fishermen concerning the requirements to register under the Marine Mammal Authorization Program (MMAP) and report all incidental injuries and mortalities of marine mammals caused by commercial fishing activities. NOAA Fisheries also distributed a field guide, *A Guide to Marine Mammals*

and Turtles of the U.S. Atlantic and Gulf of Mexico, to Category I and II fishermen to help accurately identify marine mammals on their MMAP report forms. NOAA Fisheries SER also hired a Fisheries Outreach Coordinator to build upon outreach and gear research collaboration on fisheries/marine mammal interaction issues at the dockside level.

In 2000, NOAA Fisheries also conducted a Marine Mammal Stranding Workshop in Georgia to discuss the importance of stranding data to management, current stranding network needs, and to coordinate efforts for data collection. An additional workshop is presently being planned for the Gulf of Mexico.

Regarding the Northern Right Whale Recovery Plan, members of the NOAA Fisheries Southeast Implementation Team (SEIT), along with state, federal and non-federal partners, have continued to coordinate on a number of outreach efforts to educate mariners about the threat of ship strikes in right whale habitat. These efforts include: (1) meeting with harbor pilots and port authority representatives; (2) annual updates to a "Partnering Effort" with various marine user groups defining specific actions each entity will take to avoid right whales; and (3) distributing brochures, fliers, videos, posters, and other information on right whales and the threats that vessel traffic poses to them. Members of the SEIT coordinate annually to ensure smooth operation of the EWS. SER also assisted the OPR in developing text notifying mariners regarding right whales, their critical habitat, and recommended precautions to take when transiting Southeast waters during the calving season (appears in the *Coast Pilots* and on NOAA Nautical Charts).

In September of 2000, a workshop was held in Savannah, Georgia, between NOAA Fisheries, SEIT and NEIT members and industry to discuss the right whale vessel interaction problem and a document developed by the NEIT/SEIT Ship Strike Committee (a series of recommendations on management options to help minimize the potential for whale/vessel interactions). This "Options Paper" has been widely circulated to the shipping industry and other interested parties and has been updated based on comments received. In July 1999, a Mandatory Ship Reporting System (MSR) was implemented in a cooperative effort between NOAA Fisheries and the U.S. Coast Guard (USCG). The main purpose of the MSR is to have a means of notifying ships entering areas of right whale concentration and providing them with EWS information. The SER, SEIT and USCG have worked together to distribute various outreach materials on the MSR to the shipping community, including informational booklets, brochures and placards. NOAA Fisheries' SER continues to support a quarterly newsletter, "Right Whale News," (edited by members of the SEIT) to keep ship operators, harbor pilots, port authorities, fishermen,

educators, scientists, managers, policy makers, non-governmental organizations and other concerned citizens informed about right whale conservation efforts.

In regards to promoting responsible marine wildlife viewing, the SER: (1) distributed the "NOAA Fisheries Southeast Region Marine Mammal and Sea Turtle Viewing Guidelines" brochures along with the revised "Protect Dolphins" brochures, posters and signs to the Southeast U.S. Marine Mammal Stranding Network participants, dolphin/wildlife tour operators and jet ski/boat rental businesses. In addition, "Protect Dolphins" metal enforcement signs were posted on bridges, channel markers, and piers, and plastic signs were posted at educational institutions, marinas, and similar waterway structures throughout the region; (2) produced and distributed a "Protect Wild Dolphins" video/radio public service announcement to reach tourists and other marine user groups (funded from the proceeds collected from the sale of the Protect Wild Dolphins License Plate as authorized by Florida Statute and funded by Harbor Branch Oceanographic Institute); (3) worked with local scientists and organizations (e.g., Clearwater Aquarium, Eckerd College, and Mote Marine Laboratory) to organize meetings with the public, especially dolphin/wildlife tour operators and jet ski/boat rental businesses, concerning enforcement, scientific, and outreach perspectives regarding marine mammal viewing (future meetings are being planned for Ft. Walton Beach, Panama City and Key West, Florida); (4) conducted a public meeting in Nokomis, Florida, to gather input on how to resolve the problem of illegal feeding and harassment of wild dolphins in that area and especially address the increasing problem of 'Beggar,' a local, human-habituated dolphin known to often approach vessels to beg for food; (5) worked with *SEEMagazine* (a widely distributed tourist publication) to produce an advertisement concerning dolphin viewing laws and guidelines targeting areas in Florida where dolphin feeding and harassment regularly occur; and (6) distributed news releases about dolphin protection, and participated in local festivals and events to spread the word about marine mammal and sea turtle protection.

The NOAA Fisheries' SER Protected Resources website can be found at:
<http://caldera.sero.nmfs.gov/protect/protect.htm>

Northwest Region

In 1999, the NOAA Fisheries' Northwest Region (NWR) combined efforts with the Northwest Office for Law Enforcement, Washington Department of Fish and Wildlife and Olympic Coast National Marine Sanctuary to conduct workshops for local officials on the ecology of regional marine mammals and provisions of the MMPA. Workshops were held for authorities around the inland waters of Washington State, focusing on marine mammals commonly encountered in the region.

Presentations on marine mammal life history and identification, handling protocols for stranded marine mammals and a summary of marine mammal regulations were given in shoreline communities of Northern, Central and Southern Puget Sound.

In regards to promoting responsible marine wildlife viewing, the NWR distributed new informational handouts on "SHARING THE SHORE" with harbor seals to shoreline communities, outdoor recreation shows and information kiosks. The handouts provided information on the life history and habitat needs of harbor seals and promote responsible viewing practices. The NWR also continued to issue seasonal notices to the public on the occurrence of harbor seal pupping during the spring and summer months, reminding the public that seals need to use shoreline habitat during pupping and that live animals found on beaches are to be left undisturbed.

The NOAA Fisheries' NWR Protected Resources website can be found at: <http://www.nwr.noaa.gov/>

Southwest Region

In the NOAA Fisheries' Southwest Region (SWR), the enforcement arm kept busy in 1999 and 2000 with education and outreach efforts. Enforcement officers participated in a variety of public meetings and conventions, such as the Seattle Fish EXPO, the International Diving Equipment and Marketing Association convention, and International Association of Chiefs of Police convention, in an effort to increase agency visibility and recognition, disseminate regulatory policy and agency information to the diving, boating, and travel/tourism industries, and exhibit marine mammal artifacts and information materials. In addition, enforcement staff participated in numerous community outreach projects, including Whale Fest, Earth Day, School Career Day events and Project "Wild" events in local schools.

In regards to promoting responsible marine wildlife viewing, the SWR: (1) continued outreach relationships with the Hawaiian Islands Humpback Whale Sanctuary and Monterey Bay Sanctuary with onsite Enforcement Officers and Agents assisting in outreach and responding to harassment complaints; (2) established a volunteer kayak docent program to reach recreational boaters; (3) worked with a network of dedicated volunteer organizations to alert staff of possible harassment violations, including Baynet in Northern California, Friends of the Elephant seals in the Piedras Blancas/San Simeon area, and Friends of the Seals in LaJolla; and (4) continued participation in the Kauai Monk Seal Watch Program, a partnership of government agencies, including NOAA Fisheries and the County of Kauai, and the public to respond to all reports of seals hauled out along Kauai's shoreline. The

government-volunteer network seeks to promote education and appreciation of monk seals by providing on-site information and promoting safe viewing practices.

The NOAA Fisheries' SWR Protected Resources website can be found at: <http://swr.nmfs.noaa.gov/>

Alaska Region

The NOAA Fisheries Alaska Region (AKR) continued its efforts in public education and outreach related to appropriate marine mammal viewing activities and stranding events, in particular interactions with apparently abandoned pups on the beaches of coastal Alaska. The AKR conducted public outreach to inform people that what appear to be pinniped pup strandings are typically natural occurrences whereby the mother is on a foraging trip and the pup is not usually abandoned. The main cause for concern in this arena is during the pinniped pupping season from mid-May to mid-July. During this time period, the AKR routinely experienced a problem with people approaching harbor seal pups on the beach that the people believe have been abandoned.

In addition to the above, the AKR also: (1) worked closely with the public in developing a Final Rule on Approach Regulations to protect humpback whales in Alaska, limiting the minimum approach distance to 100 yards, requiring a "slow, safe speed" when near a humpback whale, and prohibiting disruption of a whale's normal behavior or prior activity. The Rule goes into effect on July 2, 2001; (2) distributed viewing guidelines outlining a Code of Conduct to maintain when viewing the animals from the water, air and from land; (3) placed paid advertisements in local marine and tourist publications detailing the Code of Conduct; (4) collaborated with a local non-profit organization to host a workshop providing instruction on appropriate marine mammal viewing to charter boat operators in Southcentral Alaska.

The NOAA Fisheries' AKR Protected Resources website can be found at: <http://www.fakr.noaa.gov/protectedresources/default.htm>

National Marine Mammal Laboratory

In 1999-2000, staff from the National Marine Mammal Laboratory (NMML) gave presentations to school classes and community groups on various topics, including NMML research programs; marine mammal biology, behavior and ecology; identification of marine mammals in Pacific Northwest waters; marine mammal strandings; and career opportunities in marine mammal science. Staff also participated in Family Science Nights at local elementary schools, Career Days at local high schools, and a Career Day at the University of

Washington's College of Ocean and Fisheries sciences. In addition, staff answered interview questions from students, participated in media (radio, television and print) interviews, hosted students and teachers in job shadow programs and conducted hands on workshops for junior high school girls as part of the Expanding Your Horizons Program. Staff also gave tours of the NMML lab, dermestid beetle colony and skeletal collection to visiting school groups, scientists and other NOAA employees. Staff also supervised volunteers and interns who participated in field studies, processed specimens and organized and catalogued data. Staff trained NOAA Fisheries groundfish fishery observers, U.S. Navy personnel and the crew of the U.S. Coast Guard *Polar Star* to collect marine mammal sighting data for the Platforms of Opportunity program. Finally, staff hosted visiting scientists, responded to e-mail requests (posted on the NMML website) and written requests for information on internships and career opportunities in marine mammal science.

Marine mammal educational display boards (created by the Alaska Fisheries Science Center Diversity Panel) and a collection of marine mammal specimens were used in many of the outreach activities. The staff also distributed NOAA Fisheries marine mammal and fish posters, NOAA Year of the Ocean posters and pamphlets, and the NOAA Fisheries Science Teacher's Resource Guide to teachers, students, and community groups.

The NOAA Fisheries' NMML website can be found at: <http://nmml.afsc.noaa.gov/>

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APPENDICES

A - Summaries of Revised Marine Mammal Stocks

B - Health and Stranding Response

C - Interaction with Commerical Fisheries

D - NOAA Fisheries Contact Information

Table 1- Revised Alaska Marine Mammal Stocks

The following table lists only the revisions made, for the data included in the table, to the 1999 marine mammal stock assessments for the 2000 report. Changes to the estimates of abundance, human-caused mortality, and other items are indicated with the 1999 data noted in (parenthesis) and the 2000 changes noted directly below the parenthesis. A lack of parenthetical data indicates that there were no changes from the 1999 report. A full summary of all marine mammal stock assessments can be found in the Stock Assessment Reports on-line at: http://www.nmfs.noaa.gov/prof_res/PR2/Stock_Assessment_Program/sars.html. These reports can be viewed by region or individual stock.

Species	Stock Area	Science Center	Nmin	Rmax	Fr	PBR	Total Annual Mortality	Annual Fishing Mortality	Strategic Status
Beluga whale	Cook Inlet	AKC	(2/3) 303	0.02	(0.50) 0.30	(2.7) 1.8	(87) 65	0	Y
Gray whale	Eastern North Pacific	AKC	(21,597) 24,477	(0.02) 0.0235	1.00	(432) 575	(43) 140	(4) 64	N
Harbor porpoise	Southeast Alaska	AKC	(8,156) 8,376	0.02	0.50	(82) 83	(4) 3	(4) 3	N
Harbor porpoise	Gulf of Alaska	AKC	(7,085) 16,630	0.02	0.50	(71) 166	25	25	N
Humpback whale	Western North Pacific	AKC	367	0.02	0.10	0.7	(0.2) 0.4	(0.2) 0.4	Y
Humpback whale	Central North Pacific	AKC	3,698	0.02	0.10	7.4	(1.0) 2.8	(1.0) 2.8	Y
Northern fur seal	Eastern North Pacific	AKC	848,359	0.043	0.50	18,244	(1,725) 1,724	(17) 16	Y
Pacific white-sided dolphin	(Central) North Pacific	AKC	(486,719) 26,880	0.02	0.50	(4,867) 269	4	4	N

Table 2- Revised Atlantic and Gulf of Mexico Marine Mammal Stocks

The following table lists only the revisions made, for the data included in the table, to the 1999 marine mammal stock assessments for the 2000 report. Changes to the estimates of abundance, human-caused mortality, and other items are indicated with the 1999 data noted in (parenthesis) and the 2000 changes noted directly below the parenthesis. A lack of parenthetical data indicates that there were no changes from the 1999 report. A full summary of all marine mammal stock assessments can be found in the Stock Assessment Reports on-line at http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/sars.html. These reports can be viewed by region or individual stock.

Species	Stock Area	Science Center	Nmin	Rmax	Fr	PBR	Total Annual Mortality	Annual Fishing Mortality	Strategic Status
Harbor seal	Western North Atlantic	NEC	30,990	0.12	1.0	1,859	(943) 873	(943) 873	N
Gray seal	Western North Atlantic	NEC	N/A	N/A	N/A	N/A	(67) 75	(67) 75	N
Harp seal	Western North Atlantic	NEC	N/A	N/A	N/A	N/A	(383) 402	(383) 402	N
Harbor porpoise	Gulf of Maine/Bay of Fundy	NEC	48,289	0.04	0.5	483	(1,850) 1,578 ¹	(1,850) 1,521	Y
Risso's dolphin	Western North Atlantic	NEC	(11,140) 22,916	0.04	0.48	(107) 220	(7.4) 52	(7.4) 52	N
Atlantic white-sided dolphin	Western North Atlantic	NEC	19,196	0.04	0.48	184	(287) 223	(287) 223	Y
Common dolphin	Western North Atlantic	NEC	(16,060) 23,655	0.04	0.48	(154) 227	(780) 612	(780) 612	Y
Atlantic spotted dolphin	Western North Atlantic	NEC	(1,617) 27,785 ³	0.04	0.5	(16) 278	(9.9) 7.8 ²	(9.9) 7.8 ²	N
Pantropical spotted dolphin	Western North Atlantic	NEC	(1,617) 8,450	0.04	0.5	84	(9.9) 7.8 ²	(9.9) 7.8	N
Striped dolphin	Western North Atlantic	NEC	(18,220) 44,500	0.04	0.5	(182) 445	(11) 7.3	(11) 7.3	N
Bottlenose dolphin	Western North Atlantic, offshore	(NEC) SEC	(8,794) 24,879 ³	0.04	0.5	(88) 249	(10) 5.3	(10) 5.3	N
Bottlenose dolphin	Western North Atlantic, coastal	SEC	2,482	0.04	0.5	25	(29) 46	(29) 46	Y
Dwarf sperm whale	Western North Atlantic	SEC	(N/A) 373 ⁴	0.04	(N/A) 0.5	(N/A) 3.7	(0.20) 0.25	(0.20) 0.25	N
Pygmy sperm whale	Western North Atlantic	SEC	(N/A) 373	0.04	(N/A) 0.5	(N/A) 3.7	(0.20) 0.25	(0.20) 0.25	N
Bottlenose dolphin	Gulf of Mexico, Bay, Sound, Estuarine	SEC	3,933	0.04	0.5	397	N/A	N/A	Y

Table 2- Revised Atlantic and Gulf of Mexico Marine Mammal Stocks continued

Species	Stock Area	Science Center	Nmin	Rmax	Fr	PBR	Total Annual Mortality	Annual Fishing Mortality	Strategic Status
Cuvier's beaked whale	Western North Atlantic	NEC	(895) 2,419 ⁶	0.04	0.5	(8.9) 24	(9.7) 9.5	(9.7) 9.5 ⁷	Y
Mesoplodon beaked whale	Western North Atlantic	NEC	(895) 2,419 ⁵	0.04	0.5	(8.9) 24	(9.7) 9.5	(9.7) 9.5 ⁷	Y
Pilot whale, long-finned	Western North Atlantic	NEC	(4,968) 11,343 ⁷	0.04	(0.45) 0.50	(45) 113	(40) 146	(40) 137 ⁸	(N) Y
Pilot whale, short-finned	Western North Atlantic	(NEC) SEC	(457) 11,343 ⁷	0.04	(0.45) 0.50	(4.4) 113	(40) 146	(40) 137 ⁸	Y
Sperm whale	(Western) North Atlantic	NEC	(1,617) 3,505	0.04	0.1	(3.2) 7.0	0.00	0.00	Y
North Atlantic right whale	Western North Atlantic	NEC	(295) 291	(0.025) 0	0.1	(0.4) 0.00	(2.0) 1.4	(1.0) 0.6 ⁹	Y
Humpback whale	(Western North Atlantic) Gulf of Maine	NEC	10,019	0.065	0.1	(32.6) 33	(4.4) 3.7	(3.2) 2.7 ¹⁰	Y
Fin whale	Western North Atlantic	NEC	1,803	0.04	0.1	3.6	(0.5) 0.8	0.20 ¹¹	Y
Sei whale	Nova Scotia	NEC	N/A	0.04	0.1	N/A	0.00	0.00	Y
Minke whale	Canadian East Coast	NEC	(2,145) 3,097	0.04	0.5	(21) 31	(5.8) 2.7	(4.8) 2.7	N
Blue whale	Western North Atlantic	NEC	(N/A) 308	0.04	0.1	(N/A) 0.6	0.00	0.00	Y
Dwarf sperm whale	Northern Gulf of Mexico	SEC	N/A	0.04	N/A	N/A	0.00	0.00	N
Pygmy sperm whale	Northern Gulf of Mexico	SEC	N/A	0.04	N/A	N/A	0.00	0.00	N

1. Total mortality includes 57 harbor porpoises from Canadian sink gillnet and herring weir fisheries

2. Mortality data are not separated by species; therefore, species-specific estimates are not available. The mortality estimate represents both Atlantic and Pantropical spotted dolphins.

3. Estimate may include sightings of the coastal form.

4. Estimate may include both the dwarf and pygmy sperm whale.

5. Estimate includes Cuvier's beaked whales and undifferentiated *Mesoplodon spp.* beaked whales.

6. This is the average mortality of undifferentiated *Mesoplodon spp.* beaked whales based on 5 years of observer data. The annual mortality rate includes an unknown number of Cuvier's beaked whales.

7. Estimate may include both long-finned and short-finned pilot whales.

8. Mortality data are not separated by species; therefore, species-specific estimates are not available. Estimate represents both long-finned and short-finned whales. Total annual mortality includes Nova Scotia 24.95 (average of 9 long-finned pilot whales).

9. Average mortality of right whales based on 5 years of observer data (0.0) and historical fishery impact records (0.6).

10. Average mortality of humpback whales based on 5 years of observer data (0.25) and additional fishery impact records (2.4).

11. This is based on review of NOAA fisheries observer records from 1994-98 that yielded an average of 0.6 human-caused mortality (0.6 ship strikes and 0.2 fishery interactions).

Table 3- Revised Pacific Marine Mammal Stocks

The following table lists only the revisions made, for the data included in the table, to the 1999 marine mammal stock assessments for the 2000 report. Changes to the estimates of abundance, human-caused mortality, and other items are indicated with the 1999 data noted in (parentheses) and the 2000 data noted directly below the parentheses. A lack of parenthetical data indicates that there were no changes from the 1999 report. A full summary of all marine mammal stock assessments can be found in the Stock Assessment Reports on-line at: http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/sars.html. These reports can be viewed by region or individual stock.

Species	Stock Area	Science Center	Nmin	Rmax	Fr	PBR	Total Annual Mortality	Annual Fishing Mortality	Strategic Status
California sea lion	U.S	SWC	(111,339) 109,854	0.12	1.0	(6,680) 6,591	(974) 1,352	(915) 1/208	N
Harbor seal	California	SWC	27,962	0.12	1.0	1,678	(243) > 39	(234) N/A	N
Harbor seal	Oregon/Washington coast	AKC	(24,733) 24,705	0.12	1.0	(1,484) 1,482	(19) >18	(17) >16	N
Harbor seal	Inland Washington	AKC	(16,104) 15,174	0.12	1.0	(966) 910	(41) >43	(36) >38	N
Northern elephant seals	California breeding	SWC	51,625	0.083	1.0	2,142	(145) >33	(145) >33	N
Northern fur seal	San Miguel Island	AKC	(6,720) 2,336	0.086	1.0	(216) 100	0.00	0.00	N
Monk seal	Hawaii	SWC	(1,423) 1,436	0.07	0.1	5.0	N/A	N/A	Y
Harbor porpoise	Central California	SWC	4,172	0.04	0.50	42	(24) 63	(24) 63	(N) Y
Harbor porpoise	Northern California	SWC	(7,640) 8,061	0.04	(0.5) 1.0	(76) 81	(0.00) >0.2	(0.00) >0.2	N
Dall's porpoise	California/Oregon/- Washington	SWC	(34,393) 81,866	0.04	(0.48) 0.45	(330) 737	(22) 12	(22) 12	N
Pacific white-sided dolphin	California/Oregon/- Washington	SWC	(82,939) 17,475	0.04	(0.48) 0.45	(796) 157	(22) >6.8	(22) >6.8	N
Risso's dolphin	California/Oregon/- Washington	SWC	(22,388) 13,079	0.04	(0.5) 0.4	(224) 105	(37) 5.5	(37) 5.5	N
California sea lion	U.S.	SWC	(111,339) 109,854	0.12	1.0	(6,680) 6,591	(974) 1,352	(915) 1,208	N
Harbor seal	California	SWC	27,962	0.12	1.0	1,678	(243) >39	(234) N/A	N
Harbor seal	California/Oregon/- Washington coast	AKC	(24,733) 24,705	0.12	1.0	(1,484) 1,482	(19) >18	(17) >16	N
Harbor seal	Inland Washington	AKC	(16,104) 15,174	0.12	1.0	(966) 910	(41) >43	(36) >38	N
Northern elephant seals	California breeding	SWC	51,625	0.083	1.0	2,142	(145) >33	(145) >33	N
Northern fur seal	San Miguel Island	AKC	(6,720) 2,336	0.086	1.0	(216) 100	0.00	0.00	N
Monk seal	Hawaii	SWC	(1,423) 1,436	0.07	0.1	5.0	N/A	N/A	Y

Table 3- Revised Pacific Marine Mammal Stocks continued

Species	Stock Area	Science Center	Nmin	Rmax	Fr	PBR	Total Annual Mortality	Annual Fishing Mortality	Strategic Status
Harbor porpoise	Central California	SWC	4,172	0.04	0.50	42	(24) 63	(24) 63	(N) Y
Harbor porpoise	Northern California	SWC	(7,640) 8,061	0.04	(0.5) 1.0	(76) 81	(0.00) >0.2	(0.00) >0.2	N
Dall's porpoise	California/Oregon/- Washington	SWC	(34,393) 81,866	0.04	(0.48) 0.45	(330) 737	(22) 12	(22) 12	N
Pacific white-sided dolphin	California/Oregon/- Washington	SWC	(82,939) 17,475	0.04	(0.48) .045	(796) 157	(22) >6.8	(22) >6.8	N
Risso's dolphin	California/Oregon/- Washington	SWC	(22,388) 13,079	0.04	(0.5) 0.4	(224) 105	(37) 5.5	(37) 5.5	N
Bottlenose dolphin	California coastal	SWC	(134) 154	0.04	0.5	(1.3) 1.5	0.00	0.00	N
Bottlenose dolphin	California/Oregon/- Washington, offshore	SWC	(1,904) 850	0.04	(0.4) 0.5	(15) 8.5	(4.4) 0.00	(4.4) 0.00	N
Striped dolphin	California/Oregon/- Washington	SWC	(19,248) 17,995	0.04	(0.4) 0.5	(154) 180	(1.2) 0.00	(1.2) 0.00	N
Common dolphin, short-beaked	California/Oregon/- Washington	SWC	(309,717) 318,795	0.04	0.5	(3,097) 3,188	(272) 79	(272) 79	N
Common dolphin, long-beaked	California	SWC	(5,504) 27,739	0.04	(0.48) 0.45	(53) 250	14	14	N
Northern right whale dolphin	California/Oregon/- Washington	SWC	(15,080) 10,060	0.04	(0.5) 0.48	(151) 97	(47) 15	(47) 15	N
Killer whale	Eastern North Pacific, transient	AKC	(336) 376	0.04	0.45	(3.0) 3.4	(2.0) 2.6	(2.0) 2.4	N
Killer whale	Eastern North Pacific, residents	AKC	(89) 84	0.04	0.5	(0.9) 0.8	0.00	0.00	N
Pilot whale, short-finned	California/Oregon/- Washington	SWC	717	0.04	(0.48) 0.4	(6.9) 5.7	(13) 3.0	(13) 3.0	(Y) N
Baird's beaked whale	California/Oregon/- Washington	SWC	(252) 313	0.04	(0.4) 0.5	(3.1) 2.0	(1.2) 0.00	(1.2) 0.00	N
Mesopodion beaked whale	California/Oregon/- Washington	SWC	(2,840) 2,734	0.04	(0.45) 0.5	(26) 27	(>9.2) 0.00	(9.2 - 13) 0.00	N
Cuvier's beaked whale	California/Oregon/- Washington	SWC	(6,070) 4,309	0.04	0.5	(61) 43	(28) 0.00	(28) 0.00	N
Pygmy sperm whale	California/Oregon/- Washington	SWC	(2,059) 2,837	0.04	(0.45) 0.5	(19) 28	(2.8) 0.00	(2.8) 0.00	N

Appendix A - Summaries of Revised Marine Mammal Stocks

Table 3- Revised Pacific Marine Mammal Stocks continued

Species	Stock Area	Science Center	Nmin	Rmax	Fr	PBR	Total Annual Mortality	Annual Fishing Mortality	Strategic Status
(Dwarf sperm whale) discontinued	(California/Oregon/- Washington)	(SWC)	(N/A)	(0.04)	(0.5)	(N/A)	(N/A)	(N/A)	(N)
Sperm whale	California/Oregon/- Washington	SWC	(992) 995	0.04	0.1	2.0	(3.0) 2.5	(3.0) 2.5	Y
Humpback whale	California/Oregon/- Washington	SWC	(563) 861	0.04	0.1	(0.5) 1.7	(1.8) 1.4	1.2	Y
Blue whale	(California/Oregon/- Washington) Eastern North Pacific	SWC	(1,463) 1,716	0.04	0.1	(1.5) 1.7	(0.2) 0.00	0.00	Y
Fin whale	California/Oregon/- Washington	SWC	(747) 1,044	0.04	0.1	(1.5) 2.1	(<1) 0.4	0.00	Y
Bryde's whale	California/Oregon/- Washington	SWC	11,163	0.04	0.5	(0.2) N/A	0.00	0.00	N
Minke whale	California/Oregon/- Washington	SWC	440	0.04	0.45	4.0	(3.6) 0.00	(3.6) 0.00	N
Rough tooth- ed dolphin	Hawaii	SWC	(N/A) 76	0.04	0.5	(N/A) 0.8	N/A	N/A	N
Bottlenose dolphin	Hawaii	SWC	(N/A) 479	0.04	0.5	(N/A) 4.8	N/A	N/A	N
Pantropical spotted dolphin	Hawaii	SWC	(N/A) 2,040	0.04	0.5	(N/A) 20	N/A	N/A	N
Spinner dolphin	Hawaii	SWC	(677) 2,355	0.04	0.5	(5.8) 24	N/A	N/A	N
Striped dolphin	Hawaii	SWC	(N/A) 52	0.04	0.5	(N/A) 0.5	N/A	N/A	N
Melon-head- ed whale	Hawaii	SWC	(N/A) 81	0.04	0.5	(N/A) 0.8	N/A	N/A	N
False killer whale	Hawaii	SWC	(N/A) 53	0.04	0.5	(N/A) 0.8	(N/A) 9.0	(N/A) 9.0	(N) Y
Pilot whale, short-finned	Hawaii	SWC	(N/A) 1,313	0.04	0.5	(N/A) 13	N/A	N/A	N
Blainville's beaked whale	Hawaii	SWC	(N/A) 41	0.04	0.5	(N/A) 0.4	N/A	N/A	N
Cuvier's beaked whale	Hawaii	SWC	(N/A) 26	0.04	0.5	(N/A) 0.1	N/A	N/A	N
Sperm whale	Hawaii	SWC	(N/A) 41	0.04	0.5	(N/A) 0.4	N/A	N/A	Y

Table 1. 1999 and 2000 List of Pinniped Strandings

Species (1999/2000)	SE	NE	NW	CA	HI	AK
Gray Seal	0 / 1	13 / 17				
Harbor Seal	2 / 10	150 / 219	176 / 148	135 / 230		6 / 11
Spotted Seal						3 / 0
Hooded Seal	1 / 1	36 / 30				
California Sea Lion			35 / 52	596 / 1268		
Northern Sea Lion				11 / 10		
Stellar Sea Lion			3 / 5			12 / 24
Guadalupe Fur Seal				5 / 1		
Northern Fur Seal			3 / 6	7 / 3		
Elephant Seal			2 / 11	200 / 211		1 / 1
Bearded Seal						2 / 0
Ringed Seal						3 / 1
Harp Seal	1 / 0	115 / 145				
Hawaiian Monk Seal					0 / 3	
Unidentified Phocid			26 / 17			3 / 0
Unidentified Otariid			9 / 8	0 / 1		1 / 0
Unidentified Pinniped	0 / 1	4 / 12	13 / 8	112 / 133		1 / 1
TOTALS	4 / 13	318 / 423	267 / 255	1066 / 1857		33 / 38

Table 2. 1999 and 2000 List of Cetacean Strandings

Species	SE (99/00)	NE (99/00)	NW (99/00)	CA (99/00)	HI (99/00)	AK (99/00)
Bottlenose dolphin	552 / 601	97 / 87		3 / 12	0 / 1	
Common dolphin	0 / 6	28 / 28		37/30		
Striped dolphin	0 / 1	5 / 3				
Spinner dolphin					0 / 3	
Atlantic spotted dolphin	4 / 7					
Pantropical spotted dolphin	4 / 0					
Unidentified Stenallid dolphin	2 / 2					
Atlantic white-sided dolphin	1 / 0	71 / 24				
Pacific white-sided dolphin			1 / 0	4 / 3		0 / 1
Northern right whale dolphin				2 / 0		
Fraser's dolphin	2 / 0					
Risso's dolphin	1 / 1	0 / 1	1 / 1	2 / 6		
Rough-toothed dolphin	5 / 2			2 / 0	0 / 1	
Harbor porpoise	58 / 6	169 / 18	7 / 6	31 / 20		3 / 2
Dall's porpoise			3 / 9	4 / 3		4 / 1
Unidentified Delphinid	2 / 0	1 / 4		13 / 11	0 / 1	
Pygmy sperm whale	7 / 13	3 / 5		1 / 0	0 / 1	
Dwarf sperm whale	7 / 11	2 / 0		0 / 2	0 / 1	
Unspeciated Kogia	0 / 3					
Sperm whale	3 / 8	1 / 2	0 / 1	1 / 0	2 / 0	1 / 0
Beluga whale						84 / 40
Melon-headed whale	2 / 1					
Short-finned pilot whale	2 / 1	0 / 0		0 / 1	1 / 0	

Table 2. 1999 and 2000 List of Cetacean Strandings continued

Species	SE (99/00)	NE (99/00)	NW (99/00)	CA (99/00)	HI (99/00)	AK (99/00)
Long-finned pilot whale	2 / 0	12/15				
False killer whale	1/0					
Killer whale		1 / 1	1 / 0			3 / 5
Andrew's beaked whale	1/0					
Baird's beaked whale				0/1		
Cuvier's beaked whale	7 / 3			0 / 1		1 / 0
Gervais beaked whale						
Sowerby's beaked whale						
Stejneger's beaked whale				1/0		
Unidentified Mesoplodon				1/0		
Unidentified Ziphiid	2/0					
Unidentified beaked whale						4/0
Unidentified Odontocete			2/2	0 / 1		
Humpback whale	1 / 6	8 / 9		1 / 0	0 / 2	8 / 12
Minke whale	2 / 1	17 / 8		1 / 0		1 / 0
Gray whale			31 / 25	47 / 62		73 / 64
Northern right whale		2/1				
Finback whale		6/1				0 / 1
Unidentified Balaenopterid		3/5	1 / 0			1 / 0
Unidentified Cetacean	5/7		3 / 4		0 / 1	11 / 13
Unidentified whale		2 / 3		3 / 2		4 / 0
TOTAL	673 / 680	428 / 214	50 / 49	154 / 157	3 / 11	198 / 139

Table 3. Evidence of Human Interaction (c. = cetacean, p. = pinniped)

Species	SE (99/00)	NE (99/00)	NW (99/00)	CA (99/00)	AK (99/00)
Fishery	c. 38 / 51	c. 45 / 18 p. 4 / 8	c. 2 / 2 p. 1 / 5	c. NA / 11 p. NA / 20	c. 12 / NA p. 4 / NA
Vessel Collision	c. 3 / 6	c. 2 / 0 p. 1 / 3	c. 0 / 1	c. NA / 2 p. NA / 9	c. 2 / NA
Gun Shot	c. 5 / 1	p. 4 / 2	p. 3 / 9	p. NA / 19	p. 4 / NA
Blunt Trauma		p. 0 / 1			
Mutilation	c. 4 / 0	c. 15 / 0 p. 1 / 1			
Plastic Ingestion	c. 0 / 1	c. 1 / 0 p. 0 / 2			
Power Plant Entrapment	c. 0 / 1	p. 11 / 0		p. NA / 12	
Harassment		c. 1 / 1 p. 5 / 2			
Arrow Wound			p. 1 / 0		
Harpoon Wound			c. NA / 1 p. NA / 1		
Hit by Car			p. 1 / 0		
Hit by Train			p. 0 / 1		
Debris Entanglement			p. 0 / 1	p. NA / 3	
Total	c. 50 / 60	c. 64 / 19 p. 26 / 19	c. 2 / 3 p. 6 / 16	c. NA / 14 p. NA / 83	c. 14 / NA p. 8 / NA

Table 4. National Marine Mammal Tissue Bank Collection

Species	1987-1998	1999	2000	Total
Pinnipeds				
Ringed seal	60	12		73
Harbor seal	19	1		20
Spotted seal	3			3
Bearded seal	10	5	11	26
Elephant seal	1			1
Steller sea lion	4			4
Northern fur seal	21		15	36
Pacific walrus	24	10		34
California sea lion	19	3	10	32
Hooded seal	7	4	8	19
Harp seal	7	3	4	14
Gray seal	3			3
Cetaceans				
Beluga whale	54	12	4	70
Bowhead whale	48	7	1	56
Harbor porpoise	14	9	2	25
Long-finned pilot whale	11	1	7	19
Short-finned pilot whale			1	1
Pygmy sperm whale	5			5
Gervais beaked whale	1			1
Bottlenose dolphin	7	3	11	21
Striped dolphin	3		1	4
Risso dolphin	1			1
White-sided dolphin	34	11	10	53
Common dolphin	11	1		12
Rough-toothed dolphin	17			17
Fin whale	1			1
Dwarf sperm whale	1	1	1	3
Atlantic spotted whale		1		1
Cuvier's beaked whale			1	1
Fissiped				
Polar bear	35	11		
Sea otter	3			

This appendix lists U.S. Category I and II commercial fisheries according to their assigned categories under section 118 of the MMPA as described in the 2001 List of Fisheries (LOF). The estimated number of vessels/participants is expressed in terms of the number of active participants in the fishery, when possible. If this information is not available, the estimated number of vessels or persons licensed for a particular fishery is provided. If no recent information is available on the number of participants in a fishery, the number from the 1996 is used.

This appendix also lists the marine mammal species and stocks that are incidentally killed or injured in each fishery based on observer data, logbook data, stranding reports, and fishers' reports. This list includes all species or stocks known to incur injury or mortality in a given fishery. However, not all species or stocks identified are necessarily independently responsible for a fishery's categorization. There are a few fisheries that are in Category II that have no recently documented interactions with marine mammals. Justifications for placement of these fisheries are by analogy to other gear types that are known to injure or kill marine mammals, as discussed in the final LOF for 1996 (60 FR 45086, December 28, 1995).

Table 1. 2001 List of Category I and II Fisheries

Atlantic Ocean, Gulf of Mexico, and Caribbean Fisheries

CATEGORY I		
Fishery Description	Est. # of vessels/persons	Marine mammal species and stocks incidentally injured and killed
GILLNET FISHERIES:		
Atlantic Ocean, Caribbean, Gulf of Mexico large pelagic drift gillnets	15	North Atlantic right whale, WNA; Humpback whale, WNA; Sperm whale, WNA; Dwarf sperm whale, WNA; Cuvier's beaked whale, WNA; True's beaked whale, WNA; Gervais' beaked whale, WNA; Blainville's beaked whale, WNA; Risso's dolphin, WNA; Long-finned pilot whale, WNA; Short-finned pilot whale, WNA; White-sided dolphin, WNA; Common dolphin, WNA; Atlantic spotted dolphin, WNA; Pantropical spotted dolphin, WNA; Striped dolphin, WNA; Spinner dolphin, WNA; Bottlenose dolphin, WNA offshore; Harbor porpoise, GME/BF
Northeast sink gillnet	341	North Atlantic right whale, WNA; Humpback whale, WNA; Minke whale, Canadian east coast; Killer whale, WNA; White-sided dolphin, WNA; Bottlenose dolphin, WNA offshore; Harbor porpoise, GME/BF; Harbor seal, WNA; Gray seal, WNA; Common dolphin, WNA; Fin whale, WNA; Spotted dolphin, WNA; False killer whale, WNA; Harp seal, WNA
LONGLINE FISHERIES:		
Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline	36	Humpback whale, WNA; Minke whale, Canadian east coast; Risso's dolphin, WNA; Long-finned pilot whale, WNA; Short-finned pilot whale, WNA; Common dolphin, WNA; Atlantic spotted dolphin, WNA; Pantropical spotted dolphin, WNA; Striped dolphin, WNA; Bottlenose dolphin, WNA offshore; Bottlenose dolphin, GMX Outer Continental Shelf; Bottlenose dolphin, GMX Continental Shelf Edge and Slope; Atlantic spotted dolphin, Northern GMX; Pantropical spotted dolphin, Northern GMX; Risso's dolphin, Northern GMX; Harbor porpoise, GME/BF
TRAP/POT FISHERIES:		
Gulf of Maine U.S./Mid-Atlantic lobster trap/pot	13 000	North Atlantic right whale, WNA; Humpback whale, WNA; Fin whale, WNA; Minke whale, Canadian east coast; Harbor seal, WNA

Atlantic Ocean, Gulf of Mexico, and Caribbean Fisheries Continued

CATEGORY II		
Fishery Description	Est. # of vessels/persons	Marine mammal species and stocks incidentally injured and killed
GILLNET FISHERIES:		
Gulf of Maine small pelagics surface gillnet	133	Humpback whale, WNA; White-sided dolphin, WNA; Harbor seal, WNA
Southeastern U.S. Atlantic shark gillnet	12	Bottlenose dolphin, WNA coastal; North Atlantic right whale, WNA; Atlantic spotted dolphin, WNA
U.S. Mid-Atlantic coastal gillnet	>655	Humpback whale, WNA; Minke whale, Canadian east coast; Bottlenose dolphin, WNA offshore; Bottlenose dolphin, WNA coastal; Harbor porpoise, GME/BF; Harbor seal, WNA; Harp seal, WNA; Long-finned pilot whale, WNA; Short-finned pilot whale, WNA; White-sided dolphin, WNA; Common dolphin, WNA
TRAWL FISHERIES:		
Atlantic herring midwater trawl (including pair trawl)	17	Harbor seal, WNA
Atlantic squid, mackerel, butterfish trawl	620	Common dolphin, WNA; Risso's dolphin, WNA; Long-finned pilot whale, WNA; Short-finned pilot whale, WNA; White-sided dolphin, WNA
PURSE SEINE FISHERIES:		
Gulf of Mexico menhaden purse seine	50	Bottlenose dolphin, Western GMX coastal; Bottlenose dolphin, Northern GMX coastal
HAUL/BEACH SEINE FISHERIES:		
Mid-Atlantic haul seine	25	Bottlenose dolphin, WNA coastal; Harbor porpoise, GME/BF
STOP NET FISHERIES:		
North Carolina roe mullet stop net	13	Bottlenose dolphin, WNA coastal

Pacific Ocean Fisheries

CATEGORY I		
Fishery Description	Est. # of vessels/persons	Marine mammal species and stocks incidentally injured and killed
GILLNET FISHERIES:		
CA angel shark/halibut and other species large mesh (>3.5in) set gillnet	58	Harbor porpoise, central CA; Common dolphin, short-beaked, CA/OR/WA; Common dolphin, long-beaked CA; California sea lion, U.S.; Harbor seal, CA; Northern elephant seal, CA breeding; Sea otter, CA
CA/OR thresher shark/swordfish drift gillnet	130	Steller sea lion, Eastern U.S.; Sperm whale, CA/OR/WA; Dall's porpoise, CA/OR/WA; Pacific white sided dolphin, CA/OR/WA; Risso's dolphin, CA/OR/WA; Bottlenose dolphin, CA/OR/WA offshore; Short-beaked common dolphin CA/OR/WA; Long-beaked common dolphin CA/OR/WA; Northern right whale dolphin, CA/OR/WA; Short-finned pilot whale, CA/OR/WA; Baird's beaked whale, CA/OR/WA; Mesoplodont beaked whale, CA/OR/WA; Cuvier's beaked whale, CA/OR/WA; Pygmy sperm whale, CA/OR/WA; California sea lion, U.S.; Northern elephant seal, CA breeding; Humpback whale, CA/OR/WA-Mexico; Minke whale, CA/OR/WA; Striped dolphin, CA/OR/WA; Killer whale, CA/OR/WA Pacific coast; Northern fur seal, San Miguel Island

CATEGORY II		
Fishery Description	Est. # of vessels/persons	Marine mammal species and stocks incidentally injured and killed
GILLNET FISHERIES:		
AK Bristol Bay salmon drift gillnet	1,884	Steller sea lion, Western U.S.; Northern fur seal, Eastern Pacific; Harbor seal, Bering Sea; Beluga whale, Bristol Bay; Gray whale, Eastern North Pacific; Spotted seal, AK; Pacific white-sided dolphin, North Pacific
AK Bristol Bay salmon set gillnet	941	Harbor seal, Bering Sea; Beluga whale, Bristol Bay; Gray whale, Eastern North Pacific; Northern fur seal, Eastern Pacific; Spotted seal, AK
AK Cook Inlet salmon drift gillnet	560	Steller sea lion, Western U.S.; Harbor seal, GOA Harbor porpoise, GOA; Dall's porpoise, AK; Beluga whale, Cook Inlet
AK Cook Inlet salmon set gillnet	604	Steller sea lion, Western U.S.; Harbor seal, GOA; Harbor porpoise, GOA; Dall's porpoise, AK; Beluga whale, Cook Inlet

Pacific Ocean Fisheries

CATEGORY II		
Fishery Description	Est. # of vessels/persons	Marine mammal species and stocks incidentally injured and killed
GILLNET FISHERIES:		
AK Kodiak salmon set gillnet	172	Harbor seal, GOA; Harbor porpoise, GOA; Sea otter, AK
AK Metlakatla /Annette Island salmon drift gillnet	60	None documented
AK Peninsula /Aleutian Islands salmon drift gillnet	163	Northern fur seal, Eastern Pacific; Harbor seal, GOA; Harbor porpoise, Bering Sea; Dall's porpoise, AK
AK Peninsula /Aleutian Islands salmon set gillnet	110	Steller sea lion, Western U.S.; Harbor porpoise, Bering Sea
AK Prince William Sound salmon drift gillnet	509	Steller sea lion, Western U.S.; Northern fur seal, Eastern Pacific; Harbor seal, GOA; Pacific white-sided dolphin, North Pacific; Harbor porpoise, GOA; Dall's porpoise, AK; Sea Otter, AK
AK Southeast salmon drift gillnet	439	Steller sea lion, Eastern U.S.; Harbor seal, Southeast AK; Pacific white-sided dolphin, North Pacific; Harbor porpoise, Southeast AK; Dall's porpoise, AK; Humpback whale, central North Pacific
AK Yakutat salmon set gillnet	139	Harbor seal, Southeast AK; Gray whale, Eastern North Pacific
WA Puget Sound Region salmon drift gillnet (includes all inland waters south of US-Canada border and eastward of the Bonilla-Tatoosh line -Treaty Indian fishing is excluded)	725	Harbor porpoise, inland WA; Dall's porpoise, CA/OR/WA; Harbor seal, WA inland
PURSE SEINE FISHERIES:		
AK Southeast salmon	357	Humpback whale, Central North Pacific
CA anchovy, mackerel, tuna	150	Bottlenose dolphin, CA/OR/WA offshore; California sea lion, U.S.; harbor seal, CA
CA squid	65	Short-finned pilot whale, CA/OR/WA
TRAWL FISHERIES:		
AK miscellaneous finfish pair trawl	4	None documented
LONGLINE FISHERIES:		
OR swordfish floating longline	2	None documented
OR blue shark floating longline	1	None documented

List of Abbreviations

AK - Alaska
CA - California
FL - Florida
GA - Georgia

GME/BF - Gulf of Marine/Bay of Fundy

GOA - Gulf of Alaska
HI - Hawaii
NC - North Carolina
OR - Oregon
SC - South Carolina

TX - Texas
WA - Washington
WNA - Western North Atlantic

Table 2. Take Reduction Plans/Teams Timeline of Major Events and *Federal Register* Citations

Take Reduction Team Timeline					
	Pacific Offshore Cetacean	Atlantic Offshore Cetacean	Gulf of Maine Harbor Porpoise	Mid-Atlantic Harbor Porpoise	Atlantic Large Whale
Notice of First Meeting	Feb. 15, 1996 (61 FR 5385)	May 23, 1996 (61 FR 25846)	Feb. 12, 1996 (61 FR 5384)	Feb. 25, 1997 (62 FR 8428)	Aug 6, 1996 (61 FR 40819)
First meeting	Feb. 13-14, 1996	May 29-30, 1996	Feb. 14-15, 1996	Mar. 4-5, 1997	Sept. 16-17, 1996
Draft plan submitted to NOAA Fisheries	Aug. 15, 1996	Nov. 25, 1996	Aug. 8, 1996	Aug. 25, 1997	Feb. 5, 1997
Draft plan and proposed rule published	Feb. 14, 1997 (62 FR 6931)	Draft plan and proposed rule not published management changes	Aug. 13, 1997 (62 FR 43302) Comment period reopened and extended to Jan. 14, 1998 (62 FR 65402). Revised proposed rul Sept. 11, 1998 (63 FR 48670)	Sept. 11, 1998 (63 FR 48670)	Apr. 7, 1997 (62 FR 16519)
Final plan and final rule published	Final Rule Oct. 3, 1997 (62 FR 51805) Technical amendment May. 21, 1998 (63 FR 27860) Interim final rule Jan. 22, 1999 (64 FR 3431) IFR Aug. 24, 2001 (66 FR 44549)	Partially implemented under Highly Migratory Species FMP 5/28/1999 (64 FR 29089)	Final Rule Dec. 2, 1998 (63 FR 66464) Correction notice Dec 23, 1998 (63 FR 71041) Delaware Bay exemption Jan. 11, 2001 (66 FR 2336)	Final Rule Dec. 2, 1998 (63FR 66464) Correction notice Dec 23, 1998 (63 FR71041) Delaware Bay exemption Jan 11, 2001 (66 FR2336)	Interim final rule (62 FR 39157) July 22, 1007 Final rule (64 FR 7529) Feb 16, 1999 FR-Partial stay (64 FR 17292) Apr 9, 1999 FR-suspension (64 FR 73434) Dec 30, 1999 Final Rule (65 FR 70316) Nov 22, 2001 FR- gear mod (65 FR 80368) Dec 21, 2001 FR-delay of effective date (66 FR 5489) Jan 19, 2001 FR-Temporary area and gear restrictions (66 FR27042) May 16, 2001 Correction (66 FR 29213) May 29, 2001 PR-Gear modifications (66 FR 49896) Oct 1, 2001 PR-Dynamic Area Management (66 FR 50160) Oct 2, 2001 ANPR-notice of intent to prepare an EIS (66 FR 50390) Oct 3, 2001 PR-Seasonal Area Management (66 FR 59394) Nov 28, 2001 PR-Dynamic Area Management (66 FR1133) Jan 9, 2002 IFR- Seasonal Area Management (66 FR 1142) Jan 9, 2002 FR- gear modifications (66 FR 1300) Oct 10, 2002
Follow-up	2/97, 6/98, 5/00, 5/01	Team disbanded 5/7/01	12/99 12/00	1/00 11/00	10/15-16/96, 12/9-10/96, 2/8-10/99, 2/2-24/00, 4/10/00 5/23/04/00 6/27/05/00

Table 3. 1999 Marine Mammal Authorization Program Mortality/Injury Report

Species	Fisheries	Injured	Killed
Gray whale	CA/OR thresher shark/swordfish drift gillnet	0	1
Pilot whale	Atlantic Ocean/Caribbean/Gulf of Mexico large pelagics drift gillnet	0	1
Unid. Baleen whale	CA/OR thresher shark/swordfish drift gillnet	0	1
Bottlenose dolphin	Southeastern U.S. Atlantic shark gillnet	4	1
	U.S. Mid-Atlantic coastal gillnet	0	2
	Gulf of Mexico menhaden purse seine	0	1
Common dolphin	CA/OR thresher shark/swordfish drift gillnet	8	37
Harbor porpoise	Atlantic squid, mackerel, butterfish trawl	0	2
	CA angel shark/halibut & other species large mesh (3.5 in) set gillnet	6	3
	Northeast sink gillnet	0	5
Dall's porpoise	WA/OR/CA groundfish trawl	0	1
	AK Southeast Alaska salmon drift gillnet	0	1
Humpback whale	WA/OR/CA groundfish trawl	0	1
Fin whale, finback	AK misc. finish pair trawl	1	0
Unid. small cetacean	CA/OR thresher shark/swordfish drift gillnet	0	3
	AK Bristol Bay salmon drift gillnet	0	1
	AK Kodiak salmon set gillnet	0	1
California sea lion	CA/OR thresher shark/swordfish drift gillnet	0	3
	AK Bristol Bay salmon drift gillnet	0	1
	AK Kodiak salmon set gillnet	0	1
Steller sea lion	AK misc. finish pair trawl	0	1
	CA/OR thresher shark/swordfish drift gillnet	0	1
Harbor seal	CA angel shark/halibut & other species large mesh (3.5 in) set gillnet	4	19
	U.S. Mid-Atlantic coastal gillnet	0	1
	Northeast sink gillnet	0	2
Spotted seal	AK Bering Sea and Aleutian Islands groundfish trawl	0	1
Northern elephant seal	CA angel shark/halibut & other species large mesh (3.5 in) set gillnet	0	2
	CA/OR thresher shark/swordfish drift gillnet	2	1
Grey seal	Northeast sink gillnet	0	1
Unid. Seal	Northeast sink gillnet	0	1
	TOTAL	25	97

Table 4. 2000 Marine Mammal Authorization Program Mortality/Injury Report

Species	Fisheries	Injured	Killed
Gray whale	trap/crab	0	1
Pilot whale	Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline	3	0
Bottlenose dolphin	U.S. Mid-Atlantic coastal gillnet	0	2
	Gulf of Mexico menhaden purse seine	1	4
Common dolphin	CA/OR thresher shark/swordfish drift gillnet	3	15
	Gulf of Mexico menhaden purse seine	0	1
	Atlantic squid, mackerel, butterfish trawl fishery	0	5
Harbor porpoise	AK Peninsula/Aleutian Islands salmon set gillnet	1	0
	Northeast sink gillnet	0	3
Humpback whale	Northeast sink gillnet	0	1
	CA/OR thresher shark/swordfish drift gillnet	1	0
	Prince William Sound salmon drift gillnet	1	0
Pacific-white sided dolphin	CA/OR thresher shark/swordfish drift gillnet	0	11
Risso's dolphin	CA/OR thresher shark/swordfish drift gillnet	0	2
	Northeast sink gillnet	0	1
Unid. small cetacean	CA/OR thresher shark/swordfish drift gillnet	4	1
	Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline	1	0
California sea lion	CA/OR thresher shark/swordfish drift gillnet	0	23
	CA angel shark/halibut & other species large mesh (.3.5 in) set gillnet	0	25
Steller sea lion	AK Bering Sea & Aleutian Islands groundfish trawl	0	5
Harbor seal	CA angel shark/halibut & other species large mesh (.3.5 in) set gillnet	0	3
	Northeast sink gillnet	0	3
Northern elephant seal	CA angel shark/halibut & other species large mesh (.3.5 in) set gillnet	0	1
	CA/OR thresher shark/swordfish drift gillnet	1	1
Grey seal	Northeast sink gillnet	0	4
Unid. seal	AK Bering Sea & Aleutian Islands groundfish trawl	0	1
	CA/OR thresher shark/swordfish drift gillnet	0	1
Walrus	AK Bering Sea & Aleutian Islands groundfish trawl	0	1
	TOTAL	16	115

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